

# 2013 University of Puerto Rico Extension Annual Report of Accomplishments and Results

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## I. Report Overview

### 1. Executive Summary

This accomplishment report covers the period from October 1, 2012 to September 30, 2013. During this fiscal year, the Puerto Rico Agricultural Extension Service (PRAES) used 163.8 FTEs, a decrease of 2.5 FTEs from the 166.3 used for FY 2012. This difference in FTEs is due to the retirement of personnel.

PRAES has been able to accomplish its goals for 2013 POW based on the diversity of educational strategies that includes non-formal education short courses, on-site demonstrations, farm visits, the use of mass media as well as communications technology, such as the internet, used for distance training and web pages. Planned programs were able to achieve their goals focused on the national initiatives and the needs of our stakeholders at the local level. New educational materials were completed to strengthen the national initiatives including the Home Gardening curricular guide that integrates the critical issues of food security, climate change and obesity prevention. With the recruitment of the new specialist in Food and Nutrition, a new curricular guide that adapted My Plate to the Puerto Rican diet was developed and its has been implemented by our Family and Consumer Sciences professionals to advance our goal in the Childhood Obesity Planned Program. PRAES continued to work jointly with researchers from Puerto Rico Agriculture Experiment Station as well as faculty from the College of Agricultural Sciences.

PRAES expands its reach through multiple collaborative efforts with public entities; non-profit organizations; state and federal government agencies; community organizations; radio and television stations; and the press participated with PRAES to achieve our diverse goals ranging from agriculture to family and community concerns.

In addition, PRAES has continued an intense educational strategy to increase awareness of the critical issue of Food Security through its participation in various forums on sustainable agriculture and agricultural fairs held throughout the island, contributing to a renewed and increased interest in establishing vegetable gardens at homes, schools and communities.

Extension has maintained close relations with government agencies, decision makers, research scientists, and the clientele through different participatory processes such as the Merit Review and the Stakeholder Input Process. The staff of the local Extension offices continued relations with key leaders as well. These stakeholders, including our program participants, contribute their insights to our Planned Programs through their participation in the Stakeholder Input Process meetings.

PRAES planned programs has also benefited from the collaborators from the public sector including the Departments of Agriculture, Education, Health, Consumer Affairs, Labor and Human Resources, Transportation, Drug Abuse Prevention, Youth Affairs State office and other government agencies. Also, we coordinate with the USDA agencies such as Farm Service, Natural Resources Conservation Service, Rural Development, Food & Nutrition Service, Food Safety and Inspection Service, APHIS - PPQ, EPA, and Forest Service. Our former Food Security Specialist has been appointed Secretary of Agriculture for Puerto Rico, resulting in a closer collaboration with this Department. 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, participated in the assessment process determining local needs, offering their collaboration, and involving their organizations in the search of solutions to problems.

### **PLANNED PROGRAMS**

During FY 2013 we had a total of 10 planned programs. These are: 1) Plant Systems; 2) Animal Systems; 3) Family Well-being; 4) Food Safety; 5) Strengthening Youth Life Skills, Leadership and their Community; 6) Community Resources Development by Means of Fostering Sustainable Communities 7)

Climate Change; 8) Sustainable Energy; 9) Global Food Security and Hunger; and 10) Childhood Obesity. This is a reduction of one planned program from FY 2012. As explained in the 2013 POW, the previous Management of Rangeland and Forestry Resources/Soil, Water, and Air planned program was joined with the Climate Change planned program.

### **1. Plant Systems**

This planned program promoted a diverse educational program to farmers and other agricultural entrepreneurs with the purpose of improving product quality and increase production and competitiveness through the use of the most effective management system practices, integrated pest management options, irrigation systems, better practices in drainage and soil conservation, and tools and skills in economics, marketing and policies.

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

During fiscal year 2013, 3,078 producers were trained in best management practices by our Extension Agents: 517 in coffee, 850 in banana and plantain, 212 in starchy crops, 1,173 in vegetables, 81 in tropical fruits and 245 in citrus. Of the total persons trained 603 (20%) increased production and 1,737 (56%) adopted one or more recommended practices for integrated crop management.

Farmers are becoming more aware of the public's growing concerns about pesticide residues in food and contamination of surface and groundwater supplies and are trying to reduce their reliance on chemicals to control pests. Through demonstrative projects Extension agents showed farmers how IPM will help them to control Black sigatoka disease in their farms and increase production. As a result, 67% adopted one or more of the recommended practices and 33% of farmers reduced pesticide use in their farms.

Citrus growers in Puerto Rico are facing a new destructive disease: Citrus Greening (CG) or Huanglobing. The bacteria that cause the disease affect fruit quality and pose a serious risk to the Citrus industry in the island. There is a need for the implementation of an integrated management program to deal with the disease and establishment of a certification program to produce disease free trees. Losses due to CG did require the intervention of Extension Specialists and Agents to deliver an educational program to growers in order to address the problems confronted by growers with farms severely affected by the disease. PRAES educational program is showing positive results with an increase in the understanding of the Citrus Greening disease by growers, and the use of recommended management strategies, including a specific fertilizer program and chemical control of the psyllid by 60% of the citrus growers participating in our educational program.

### **2. Animal System**

In Puerto Rico, animal production represents a significant component of the agricultural income (47.8%). The sectors that contributed the most, in order of economic relevance, were dairy cattle, poultry, beef cattle, pigs, fish and other aquacultures, rabbits, bees, goats and sheep. Livestock production has been negatively impacted by challenges such as low reproductive performance, heat stress, poor nutritional management, elevated costs of high energy foods, a decline in the demand for dairy products, as well as current changes in global trends.

PRAES is working in close collaboration with the Experimental Station and the faculty of the College of Agricultural Sciences in developing research with dairy crossbreeding as a means to provide farmers with breeds that can better tolerate heat stress. Dairy farmers are been oriented in genetic selection for economic traits such as profit index, total economic index and profitable life index; together as a means to improve health of cattle and therefore lifetime profits. PRAES is also concentrating efforts in identifying cattle farmers with the best reproductive performance.

The economic crisis that our Island is currently undergoing has forced many farmers to look for

options to increase their income in order to provide their families. The following is an example of how PRAES is working with these farmers:

A dairy farmer from Cayey, PR decided to establish a cheese-making business to make his dairy farm more sustainable, by means of increasing the income of the milk he produces. He is currently using over 75% of his quote for such production (he produces 21,500 qts. bimonthly which represents 100% of his quote). The farmer started using 1,200 qts. of milk bimonthly to make cheese, which correspond to 5.6% of his quote. He is producing mostly aged cheeses which sell at \$11.00/lb. With an average yield of 5.5qts of milk/1lb of aged cheese, he is making \$2,400 in sales bimonthly. When compared with the price he received by the milk he uses now for cheese production (1,200 qts. @ \$0.50 = \$600), he has an extra income of \$1,800 bimonthly. Assuming 50% of operational costs (i.e., 2 workers) he is now making \$21,600 annually vs \$7,200 he used to make with the milk produced over 75% of his quote. In order to dilute operational costs, he is planning to double the production of cheese to 2,400 qts. bimonthly in the current year, which will represent \$43,200 annually. Since most of the artisanal cheese is imported to the island, extension personnel are working together with dairy farmers to evaluate sale strategies and projections of the expected customer demands for various cheese type and other dairy products. Other positive results are presented in the Impact Statements.

### **3. Family Well-being**

The changes in the composition of Puerto Rican families have brought social, political, and economic changes that affect their vital function. The Family Well-being planned program targets families, children, youth, elderly people, new couples, and employees of the public and private sectors. Its goal is to develop educational programs to empower families to nurture, support, and guide their members throughout their lives and motivate them to improve their quality of life and well-being. This planned program also addresses consumer education where participants understand how consumer behavior influences decision-making as well as gain knowledge and skills about budgeting, debt reduction, credit wise and savings in order to increase their financial well-being. A third component in this program is health education.

To reach this planned program's goals, the Family Life and Consumer Education specialists help develop character traits, values, family strengths and aging aspects through workshops, curriculum, radio programs, bulletins, information centers, and trainings in successful parenting. Our achievements had been also facilitated through the establishment of coalitions with Puerto Rico government's agencies such as the Department of Consumer Affairs, the Department of the Family, Department of Health, the Department of Education and the Consumer Credit Counseling.

In FY 2013, 4,769 persons participated in our non-formal education short courses in parenting and related areas, aging aspects, consumer education, family resource management and health promotion programs. From the total of participants, 3,578 (75%) reported acquiring knowledge and improving skills to manage these family's critical aspects. In addition, 99 educational campaigns state wide were conducted on the topics of family violence and child maltreatment. These interventions reached 22,281 individuals and families.

### **4. Food Safety**

The goal of the Food Safety planned program is to improve food safety handling practices among individuals that prepare and serve food through the control, reduction or elimination of contamination risks.

This program consists of two main areas: education for consumers and education for food managers. PRAES' priorities are to offer the Food Safety Certification Course to persons in charge of retail food establishments and to continue offering formal education to professionals that teach or enforce compliance regulations. To accomplish this mission, PRAES continue working in partnership with other agencies to develop educational programs.

During FY 2013, a total of 4,599 individuals have participated in our educational courses: 1,040 consumers at the household level and 3,559 persons in charge of food establishments. Extension certification course for food establishments is one of the most recognized courses by the Health Department in Puerto Rico. PRAES continues its high percentage of certifications. During this year 97%

approved the examination course. Therefore, the participants in PRAES courses are gaining the knowledge on the topics that the Food Code requires for the persons in charge of a food establishment. In order to achieve our goal of reducing and controlling contamination risks in our food establishments, knowledge needs to be put in practice. Our results showed that 66% of the participants in our certification courses had adopted or put into practice at their establishments, three or more of the eight selected food handling practices recommended by the Food Code, including preparing a plan for controlling the temperatures, washing their hands and using disposable gloves among others discussed in our impact statement.

It has also been established that home is associated with significant foodborne illness risk. Therefore an important component of our Food Safety program focus as well in the consumer at the household level. From the 1,040 consumers that completed Families be Food Safe curriculum, 78% reported adopting at least one safe food handling practice: 74% cleaned and sanitized the food contact surfaces; 82% washed their hands frequently and 69% avoided cross contamination. Our results showed that PRAES is significantly contributing to reduction or elimination of contamination risks by improving food safety handling practices, both at the food establishments and at the household level.

### **5. Strengthening Youth Life Skills, Leadership and their Community**

This planned program is embedded in our Youth and 4-H club base program. It is based on the assumption that 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, especially when poorly equipped with the necessary skills to avoid them. These children and youth do not have the advantages that promote an optimum, healthy development of body, mind, and spirit and many do not have the opportunities to experience positive stimulation for growth or nurturing support from their family, friends and community.

The main goal of this planned program is to increase the number of youngsters that have improved their life skills for a positive youth development. This is achieved through the integration of the three 4H National Council mission mandates: leadership, citizenship and community; science and technology, and healthy lifestyles. The diversity of educational strategies based on experiential learning activities such as workshops, camps and contests had provided our younger participants with the needed opportunities to expand their knowledge and develop the necessary life skills to achieve a positive development and become productive and responsible citizens.

During FY 2013, we had 4,337 children/youth who participated in life skills and subject matter educational programs designed to teach basic life skills. Our results showed that the number of children/youth that demonstrated improved life skills ranges from 34% to 58% from the total participants: 34% demonstrated improved managing skills (decision making, problem solving, planning, organization, and service learning, according to the Targeting Life Skills Model); 54% demonstrated improved relating skills (communication), among these, one of the most frequent skill reported by our participants is talking in front of a group; 58% demonstrated improved giving and working skills (leadership, community service, volunteering, teamwork) and 38% demonstrated improved being and living skills (self-esteem and healthy lifestyle choices). During FY 2013, no new publications were completed, however during this year the recently recruited Specialists in Food and Nutrition, and in Health, were assigned the development of new material for children and youth in various priority areas, which are been finishing during FY 2014.

### **6. Community Resources Development by Means of Fostering Sustainable Communities**

PRAES has consolidated an effective Community Economic Development and Self-management Program that addresses Puerto Rico's most pressing social issues. Puerto Rico continues experiencing a sustained poverty level rate close to 50%. The rate of communities, both urban and rural, that experience long-term spells of poverty and inequality far surpass those in the U.S. In view of this, our planned program focuses on holistic educational strategies that promote self-employment and community oriented initiatives as to foster sustainability, self-reliance and empowerment. A participant oriented methodology (Participatory Action Research) is already in place, in which participants continue taking an active role in

defining problems and aspirations, seeking possible solutions, implementing strategies, and evaluating the results.

The ultimate goals of this planned program are: 1) 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; and 2) To improve the social, economic and environmental quality for individuals and families by increasing the number of community projects focused on developing empowered and self-managed communities.

This planned program emphasized training community leaders and members in in community-based business; on community organization and empowerment, and training on emergency and disaster situations. A total of 1,005 community members were trained in one of these areas. From these, 331 community leaders are actively participating in the design and implementation of community projects that will positively impact their communities.

During FY 2013, 37 community-based businesses were established. This year there has been a slight reduction from the 40 plus business a year rate we have been maintaining for the past 4 years. We esteem that the closure of the US. Federal Government during 2013 might have had a direct impact in this observed reduction. Our strategy of providing entrepreneurial training to those stakeholders who benefit from PRAES other courses which provides marketable skills in family science and agriculture has resulted effective. Most of these community-based and micro-business being created are in areas of agricultural production, food confection, and services closely related to the Agriculture, as well as Family Science curricula. Management of Community Water System Facilities (NONPRASA water systems) continues to be the area of biggest growth being reported. These initiatives have resulted in the creation of 56 new permanent jobs, 13 proposals approved and has provided additional income to 722 participants.

## **7. Climate Change**

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

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

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

The ultimate goal of this planned programs are: 1) Enhance resilience and response capacity to extreme weather events while maintaining productivity and quality of life; and 2) Protect vital resources (soil and water) by implementing and adopting recommended preventive measures (BMP's).

During FY 2012 the new curricular guide on Climate Change was completed and during FY 2013 capacity building to our Extension professionals together with the State Department of Agriculture and other service agencies took place, geared to the implementation of practices, measures and resources that enable farmers to adapt, to mitigate and to minimize economic losses. Therefore the Extension Agents were able to begin disseminating the message and creating awareness about this important issue. A total of 741 individuals received capacity development (workshops, seminars, conferences) on climate change. From these, 242 reported adopting recommended practices for the adoption or mitigation of climate change in their farms. Generally in Puerto Rico, the rainfall ranges between 55 and 80 inches, but we have experienced drought at a small scale which severely affected the agricultural production costing

millions of dollars in revenue. Educational material was prepared on rain water harvesting and storage for farm use. This educational material was utilized for training courses for Extension professionals and later farmers training. It is resulting in first creating awareness of this preventive measure and then, encouraging farmers to adopt this practice as an adaptation preparation to cope with a changing climate.

## **8. Sustainable Energy**

The decreases in oil availability, uncertainty in the cost of fuels and its implications in the economic wellbeing of our citizens, have triggered the urgency for energy independence and sustainability. Puerto Rico, has one of the highest costs of fuel in the United States, however, even though our tropical climate is favorable to the sustainable energy industry, not many projects have passed the planning phase.

The Sustainable Energy planned program seeks to increase knowledge in our clientele of the sustainable energy technologies, energy conservation, opportunities for financing sustainable energy projects and their cost, and environmental benefits.

During FY 2013, Extension agents offered training programs to disseminate the educational message about efficient use of electricity to the owners of agricultural enterprises. The program includes training on energy efficiency and solar energy systems. During the last trimester of 2013, a survey was administered to 110 dairy farmers from a total of 312 in operation last year in Puerto Rico in order to assess the results of this program. As a result, 57 dairy farm owners in Puerto Rico established high efficiency equipment, 50 establish variable speed drives in the vacuum line, 21 replace old motor for new more efficient and almost 7 dairy farms establish solar energy on their facilities. Those changes translate into savings of \$900,000.00 annually in electrical bill, to achieve a reduction of 39% in the use of energy.

## **9. Global Food Security and Hunger**

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

In 2009, only 18.9% of the food and beverages consumed in Puerto Rico were produced on the Island (External Trade Statistics, 2009). Most imports came from the United States (food miles from the USA farms to PR consumers are an average of more than 2,800 miles, 1,300 are by sea), but Puerto Rico also received food from more than 50 countries around the world. The domestic production consisted mainly of milk, plantains, eggs and coffee. PRAES has the mission to help farmers, agro entrepreneurs, and the public in general to understand the threats to our food security and to identify strategies to attend these threats. The ultimate goal of this planned program is:

To increase food security at the national and household levels by:

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

A total of 6,464 individuals participated in food system knowledge and skill enhancement programs through a diversity of educational activities ranging from short courses, conferences and agricultural fairs among others. PRAES has been involved in the revision of 16 public policy issues related with national food security. The continued loss of agricultural land is one of the threats to Puerto Rico's food security. As a result of PRAES interventions, 706 fallows (acres) had been sowed or prepared for animal production or other agricultural production. In addition, 1,220 acres are in conservation tillage or other BMP. Through the promotion of home gardening as household's food security strategy, a total of 1,143 home gardens were established during FY 2013.

Originally, the FTEs for this planned program were counted from the Animal System and the Plant System's planned programs. Because of this reason FTEs were higher in previous Annual Reports. To

better account for the FTEs, the Food Security planned program was separated as a program in our reporting system, therefore decreasing the FTEs. However, these are specifically target to this planned program goals. On the other hand, Food Security continues also to be a component for Plant and Animal System planned programs.

During the month of January 2013 our Food Security Specialist was appointed as Secretary of Agriculture for Puerto Rico. As the person in charge of peer reviewed publications in this planned program, we were not able to have any peer reviewed publications for FY 2013. However, she did completed the new PRAES curricular guide for Food Security which is the educational material used by our Extension professionals to promote our educational message.

#### **10. Childhood Obesity**

Healthy People 2010 identified overweight and obesity as 1 of 10 leading health indicators and called for a reduction in the proportion of children and adolescents who are overweight or obese (Center for Disease Control and Prevention-CDC). The planned program Childhood Obesity targeted this issue as a major public health problem and focus on: nutrition knowledge, physical activity, and public policy to promote a holistic view of childhood obesity in the population. The program has concentrated on the development of family and personal strategies that facilitate healthy food choices and active living. It is based on scientific evidence, which identifies the most important factors that contribute to the epidemic of childhood obesity, such as a poor diet and physical inactivity. This program is working together with government agencies and community organizations and alliances through coordinated agreements. These collaborations will prevent duplicity of efforts and promote the best use of resources and sharing of achievements.

This program's long-range goal is to reduce the progression of obesity in the local population through community based interventions, providing youth and their families' tools to develop, adopt, and maintain behavioral changes that will set the stage for healthy eating, physical activity, and weight management.

The following course curriculums were prepared for use by our Extension professionals. These are: 1) "Tomando Control para la Sana Alimentación" (Taking Control for a Healthy Diet, the adult obesity prevention curriculum); 2) "Muévete a la Sana Alimentación" (Move to a Healthy Diet, the childhood obesity prevention curriculum). These curricular guides adapted My Plate to the Puerto Rican diet.

In Puerto Rico, 30% of children and youth are considered obese; and more than 40% of children and youth are consuming "junk foods", sugared drinks and sweets (YBRFSS, 2009). PRAES interventions through this planned program provided nutrition education in the areas of portion control, healthy snacks, reading food labels and healthy choices. A total of 2,066 children and youth completed non-formal nutrition and physical activity education courses based on this new curricular guide. Among these, 82% reported an increased consumption of fresh fruits, 65% increased consumption of vegetables and 62% reported an increase in consumption of whole grain cereals after nutrition education and hands-on activities. Moreover, 63% of the children and youth reduced the consumption of sugary foods. In addition, among children participating in short courses 1,366 (66%) reported an increase in daily physical activity; 53% reported engaging daily in 60 minutes or more of physical activity.

The Childhood Obesity planned program promotes the integration of two other NIFA initiatives: Food Safety and Global Food Security and Hunger by enhancing the ability of families to grow their own nutritious foods while increasing physical activity, as well as preserving nutritious foods by applying food safety recommendations. Furthermore, efforts to disseminate Puerto Rico's Food Basket, will relate locally grown foods and food security. We have seen this effort moving forward with a total of 549 adults/caregivers reported harvesting and consuming nutritious foods from their own home or community garden.

### **EVALUATION OF MULTI JOINT ACTIVITIES**

**1) How will the planned program address the critical issues of strategic importance, including those identified by the stakeholders?**

Critical issues of strategic importance continue to be addressed through the five national initiatives and have been integrated across the four base programs. In addition, the Local Advisory Committees are a major mechanism to identify local needs of our stakeholders in the municipalities. These needs are addressed locally in the plan of work of every municipality. Most of these issues are already addressed by our planned programs.

The Merit Review process, conducted for each base program, also provides an additional perspective to the needs of our stakeholders, as diverse agencies and groups working with similar audiences contribute to the identification of these needs. In the area of agriculture, commodity meetings provide a more specific identification of critical issues. Meetings are conducted for every commodity with participation of farmers, Extension agents and researchers from the Agricultural Experiment Station. Extension specialists become major contacts between PRAES and the Experimental Station. During these meetings, critical issues are discussed and strategies are defined to address these issues.

One of the issues identified by the commodity meetings was the need to evaluate dairy cattle strains (slick hair cows) resistant to heat stress. The promotion of renewable energy projects as an alternative to the increasing energy costs continued to emerge as a major critical issue. This issue is addressed through the Renewable Energy Planned Program.

The critical issue of childhood obesity, identified already as a National Initiative, is being addressed through collaborative efforts between all our four base programs. At the Family Consumer Sciences base program, with the recruitment of the new Food and Nutrition Specialist, a new curricular guide that adapted my plate to our Puertorrican diet, was completed and our CFS professionals were trained to disseminate the message of my plate to prevent childhood obesity. This educational strategy particularly targets our children and youth, mainly participants in our 4-H clubs. In collaboration with the Agricultural base program we will emphasize the establishment of family, urban, and community gardens as a means to promote the consumption of fresh fruit and vegetables. A multidisciplinary curricular guide has also been developed for this purpose. This will not only address the issue of obesity but also food security. Extension will continue to collaborate with the Department of Agriculture of Puerto Rico and the Department of Education in the establishment of school gardens. In addition, the Agriculture program will emphasize aquaculture systems as a means to facilitate food security in Puerto Rico.

Other critical issues identified in CFS base programs, continued to be child maltreatment and economic issues, both issues addressed in the Family Well-being Planned Program.

Effective and constant communication with our youth participants also provides us the input from our youngster, perspectives.

The Four-H program continues to address the critical issues of the national initiatives, including childhood obesity, food security, food safety, and climate change. State major initiatives emphasize consumer education and value characters, as well as the development of life skills. Through a collaborative project between PRAES and ASSMCA, Four-H continues attending the major critical issue prevention of alcohol and drug consumption among youngsters.

The Community Resources Development base program (CRD) continues to focus on addressing two critical issues at the community level: unemployment and the economic crisis. Most of its educational efforts are aimed at teaching about the development of family and community microenterprises in order to foster self-employment opportunities.

Collaboration with Rural Development has resulted in an important strategy for communities to address several of these issues.

## **2) How will the planned programs address the needs of under-served and under-represented population of the states?**

The Puerto Rican population living in poverty, which is the focus of our program, is by definition an under-represented group. Within this group we have initiatives at the community level that centers in training and developing business initiatives for women who head single headed households. Other entrepreneurial programs focus in serving youth women, providing education opportunities for the completion of high school diploma and employment training.

The PRAES Agriculture base program must increase its efforts to reach the under-served and under-



represented population. Traditional educational conferences and commodity meetings are usually attended by the most successful farmers. Struggling farmers and women are commonly absent from such activities. The PRAES successful project Women in Agriculture Initiative addressed the under-represented women farmers. However, the PRAES must increase its efforts to promote the development of associations and cooperatives among groups of small farmers. Collaborative agreements with the local Department of Agriculture needs to be reevaluated to assure the focused of the technical assistance and counseling of the PRAES is the under-represented small farmers.

During this year the 4H program emphasized on activities were under-represented audiences could participate. With the logo "A world where all worlds fit" our 4H program responded to the needs of its participants. We developed special activities to integrate the Healthy Living program with participants with disabilities. These participants had the opportunity to select and prepare healthy foods, using my plate and how to produce food through gardening. They also began to perceive physical activity as good and fun for their lives. Through this kind of initiative our youth, adults and volunteers developed skills that enable them to take actions that will contribute to a healthy lifestyle.

For this project collaborations were established with the State Sports and Recreation Department, the Episcopal Congregation, and the Department of Education. Our 4-H program for participants with disabilities was also assisted by our "Route for Healthy Living" a program sponsored by the National 4-H Council and Walmart Foundation. Through this program we improve youth lives physically, socially, emotionally and economically.

The Family and Consumer Sciences planned programs targeted groups include low income families, adolescent mothers, elderly people, at risk population, and women heads of households, as well as individuals with physical, social and economic disadvantages. It also targets the under-served audiences of single fathers, grandparents raising grandchildren, battered women and children living below poverty level.

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

Every planned program at PRAES described the expected outcome and impacts through outcome indicators reported in the Electronic Reporting System that collects data throughout the state. Impacts are collected through local and state success stories and reported in the section Impact Statements of the Annual Report. Most of the planned programs reported at least one impact statement which focused on outcomes or changes in action and conditions. The Agricultural base program must strive to establish a base line in all important agriculture enterprises in Puerto Rico. Outcomes must establish how many farmers adopted recommended practices in comparison to the base line. Impacts must evidence the increase in productivity of a particular agricultural sector. In general the Agricultural planned programs outcomes will focused on: percentage of farmers adopting recommended practices, improvement in the quality of the products, increases in market share of local produce and increases in local agriculture production

The Family and Consumer Sciences planned programs focused on changes in knowledge and skills and on the adoption of recommended practices.

The Community Development Planned Program has developed a questionnaire form to help field personnel provide information on the extent and impact of different community economic initiatives.

The Youth Development Planned Program, in addition to the data collected through our state reporting system, emphasizes the use of success stories to support this quantitative data and further describe all the changes achieved through the many different projects that focus on healthy living (obesity), food security and agriculture. Some examples showed how groups of youth were educated in basic agricultural techniques resulting in the development of a school garden. The regular students learn to work with youth with disabilities resulting in better school environment and inclusion opportunities.

Another success story presented, a social worker for the Independent Life Project in San Juan City, the 4H Project fulfilled its objectives because " it allowed 18 youths to play a leading role while carrying out the activities. This was possible since the information provided was adapted into a simple language, illustrations, demonstrations and step-by-step explanations". "Youths are creating awareness about what they and other peers get served and eat in the lunchroom. They are even aware of what the adults are

eating, they are integrating new flavors and colors in their plate".

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

PRAES planned programs continued to improve their efficiency through collaborative multi-institutional efforts with major agencies and institutions that work with similar audiences such as the PR Department of Agriculture, Farm Service, Rural Development, NRCS, Commodity Farmers' Association, The Family Department, the Head Start Program and the Departments of Education. Specifically, PRAES united efforts with the Agricultural Experimental Station where Extension agents and researchers worked together in the organization of commodity meetings in which critical issues were discussed with farmers and other audience related to agriculture. Periodic progress evaluations are conducted to evaluate how programs are accomplishing their objectives and impacts.

The Community Resources Development by Means of Fostering Sustainable Communitiesplanned program has maintained a steady rate of both employment and community based economic initiatives as result of the consolidation of the Entrepreneurial Tool Box as an Educational Strategy.

The Strengthening Youth planned program is been achieving its goals through the use of diverse strategies. Continuously, the 4H staff offered PRAES county agents conferences workshops and training in life skills, leadership, and community services to enhance their performance in the field. Agents work in an integral form respecting the competency and potential of each participant; also we improve our work with volunteers. Also, 4Hers work together with our Agents in mass communication strategies to promote 4-H as a positive organization for youth. Important media in PR talk about 4H and their purpose to encourage youth to obtain knowledge, develop life skills, and communication citizenships skills.

Planned programs will continue to be effective by increasing changes in knowledge, skills, practices, and conditions in our participants, families, and communities; as they are focused on the most critical needs of our people. However, we recognize that to improve effectiveness the PRAES must improve its presence on the Internet. In addition, we must continue improving our data gathering system to demonstrate that PRAES educational methods are desired by the audience and effective in increasing changes in knowledge, skills, practices and conditions in our participants, families and communities as they are focused on the most critical needs of our people.

**Total Actual Amount of professional FTEs/SYs for this State**

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	164.5	0.0	0.0	0.0
Actual	163.8	0.0	0.0	0.0

**II. Merit Review Process**

**1. The Merit Review Process that was Employed for this year**

- Internal University Panel
- External University Panel

**2. Brief Explanation**

The Merit Review process was conducted through four committees which represent each of the four major program areas: 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 and External Non-University Panel. They met twice during the year. In the first meeting Extension staff presented the Preliminary Plan of Work for the upcoming year and members of the committee were asked to present their views and recommendations related to the POW. The program area leaders, together with other Extension staff, then defined the educational strategies to address the recommendations offered by the committee members. These were then incorporated in the final POW as needed. During the second committee meeting an oral and written report was presented by the program area leader in which were identified how the committee recommendations were addressed and the Annual Report of Accomplishments was presented to the committee.

### **III. Stakeholder Input**

#### **1. Actions taken to seek stakeholder input that encouraged their participation**

- Targeted invitation to traditional stakeholder individuals

#### **Brief explanation.**

At the local level, the Local Advisory Committees' major task is to collect input from our local stakeholders. The committees are composed of at least two beneficiaries from each of the base program areas (Agriculture, Marketing and Natural Resources; Family and Consumer Sciences; Four-H and Youth Development; and Community Resource Development) and a minimum of two representatives from local agencies that work with similar audiences as Extension. To encourage their participation, potential members are introduced (through letters) to the importance of the process and the importance of their contribution to improve Extension educational programs.

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

##### **1. Method to identify individuals and groups**

- Use Advisory Committees

#### **Brief explanation.**

The members of these committees were selected by the Extension agents from among their target audience, based on their experience and participation in the Extension programs and were invited by letter to join the committee.

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

##### **1. Methods for collecting Stakeholder Input**

- Meeting with traditional Stakeholder individuals

#### **Brief explanation.**

The process to collect the stakeholder input took place through meetings. The committees met twice during the year to discuss critical issues locally, as well as to identify emerging issues that could be addressed by Extension. Each local committee identified priority issues in each of the four

programs areas.

### **3. A statement of how the input will be considered**

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

#### **Brief explanation.**

Input collected from stakeholders at the Local Advisory Committees was reported to the state level. This data was evaluated by state program leaders in order to identify emerging issues that should be included in the state plan of work or redirect programs when needed. Issues identified by farmers and other agricultural representatives that required or suggested a research agenda, were referred to the Agricultural Experiment Station. At the local level, municipalities set priorities for their local plan of work according to the stakeholders' input.

#### **Brief Explanation of what you learned from your Stakeholders**

Most of the input received from our stakeholders relates to the needs and situations affecting our individuals and communities and our society in general. Most of the issues identified for FY 2013 continue to be those from FY 2012. As people continues to gain awareness about Food Security through our Planned Programs, there has been an increased interest in vegetable gardening, both at the household level and at the community level including school garden.

Other major issues identified by our stakeholders are obesity, particularly among children and youth. Stakeholders coincide that contributing factors are mainly bad food choices and lack of physical activity. Therefore, Extension through two of the National Initiatives, Childhood Obesity & Food Security, has been addressing these issues and as the situation shows, these will continue to be major issues for our Planned Programs for years to come. During FY 2013, our Agents received the training with the new curricular guide for Home Gardening which integrates the issues of obesity and food security.

Among Agricultural issues, our stakeholders coincide in the importance of creating awareness about food security at our state levels. They have also mentioned the importance of promoting sustainable agricultural practices, protecting our agricultural lands and natural resources, developing efficient marketing strategies as well as issues related to agricultural financing. All are issues that Extension addresses through our Agricultural related Planned Programs but that needs to provide continues updates.

Among issues affecting children, youth and families, in addition to obesity, stakeholders are mainly concerned with the domestic violence affecting our women and children. This continues to strengthen the importance of our state level Family Well-being Planned Program which emphasizes in parenting skill and social and personal values through our educational curriculum directed at adults, youth and the elderly. Stakeholders also recognized the contribution of Extension addressing these and other issues affecting our youth, through our 4-H clubs organized in school and communities.

At the community level, some stakeholders still confuse our educational services with those from other governmental agencies as they present the infrastructural needs from their own communities such as repairing roads and other building needs, which extensionist redirect to the concerning agencies. Communities emphasized the importance of developing leadership skills among their members. Most stakeholders also coincide in the importance of continue developing community - based businesses as a strategy to alternate the economic crisis affecting our population.

IV. Expenditure Summary

<b>1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)</b>			
<b>Extension</b>		<b>Research</b>	
<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
6181976	0	0	0

<b>2. Totalled Actual dollars from Planned Programs Inputs</b>				
<b>Extension</b>			<b>Research</b>	
	<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
<b>Actual Formula</b>	8557372	0	0	0
<b>Actual Matching</b>	2993125	0	0	0
<b>Actual All Other</b>	0	0	0	0
<b>Total Actual Expended</b>	11550497	0	0	0

<b>3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous</b>				
<b>Carryover</b>	0	0	0	0

## V. Planned Program Table of Content

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

**V(A). Planned Program (Summary)**

**Program # 1**

**1. Name of the Planned Program**

Plant System

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

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

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	29.6	0.0	0.0	0.0
Actual Paid Professional	25.3	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1316960	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
460635	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

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

**2. Brief description of the target audience**

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

**3. How was eXtension used?**

Extension was not used in this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	7708	6346	2716	397

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2013

Actual: 0



**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

<b>2013</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	4	0	4

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of producers trained in integrated coffee management.

<b>Year</b>	<b>Actual</b>
2013	517

**Output #2**

**Output Measure**

- Number of producers trained in banana and plantain management.

<b>Year</b>	<b>Actual</b>
2013	850

**Output #3**

**Output Measure**

- Number of producers trained in integrated starchy crops management.

<b>Year</b>	<b>Actual</b>
2013	212

**Output #4**

**Output Measure**

- Number of producers trained in integrated vegetable management.

<b>Year</b>	<b>Actual</b>
2013	1173

**Output #5**

**Output Measure**

- Number of producers trained in integrated tropical fruits management.

<b>Year</b>	<b>Actual</b>
2013	81

**Output #6**

**Output Measure**

- Number of producers trained in integrated citrus management.

<b>Year</b>	<b>Actual</b>
2013	245

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

**Outcome #1**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	356

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
216	Integrated Pest Management Systems
403	Waste Disposal, Recycling, and Reuse

**Outcome #2**

**1. Outcome Measures**

Number of producers that increased production and quality of coffee.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	111

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
216	Integrated Pest Management Systems
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
601	Economics of Agricultural Production and Farm Management
610	Domestic Policy Analysis

**Outcome #3**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2013	572

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Plantain and banana producers in Puerto Rico face problems associated to Black Sigatoka disease. The presence of this destructive disease required the intervention of Extension agents and specialists to deliver an educational program to farmers on integrated management of the disease to improve production.

#### What has been done

Demonstrational projects showing BS integrated management were established in two experimental stations to show farmers how IPM will help them to control the disease in their farms and increase production. PRAES agents offered trainings, visits and orientations to farmers, including the distribution of educational materials.

#### Results

67% of the growers that adopted 1 or more IPM practices after completing a course in Integrated Plantain and Banana Management (IPBM) increased their production and 33% reduced pesticide use in their farms. The main outcome obtained as a result of the demonstrational projects in plantain, was an increase in the understanding of the Black Sigatoka disease by growers, an increase in the use of sustainable management strategies including cultural control and less use of pesticides by applying based on disease incidence.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems
401	Structures, Facilities, and General Purpose Farm Supplies
610	Domestic Policy Analysis

### Outcome #4

#### 1. Outcome Measures

Number of producers that increased production in plantain and bananas

#### 2. Associated Institution Types

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	247

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems
216	Integrated Pest Management Systems
402	Engineering Systems and Equipment
601	Economics of Agricultural Production and Farm Management
604	Marketing and Distribution Practices
610	Domestic Policy Analysis

**Outcome #5**

**1. Outcome Measures**

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

Not Reporting on this Outcome Measure

**Outcome #6**

**1. Outcome Measures**

Number of producers that increased production in starchy crops.

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	585

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems
401	Structures, Facilities, and General Purpose Farm Supplies
604	Marketing and Distribution Practices

**Outcome #8**

**1. Outcome Measures**

Number of producers that increased production in vegetable crops.

**2. Associated Institution Types**



- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	195

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
604	Marketing and Distribution Practices

**Outcome #9**

**1. Outcome Measures**

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

Not Reporting on this Outcome Measure

**Outcome #10**

**1. Outcome Measures**

Number of producers that increased production in tropical fruit crops.

Not Reporting on this Outcome Measure

## **Outcome #11**

### **1. Outcome Measures**

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

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	224

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

Citrus growers in Puerto Rico are facing a new destructive disease: Citrus Greening (CG) or Huanglobing. The bacteria that cause the disease affect fruit quality and poses a serious risk to the Citrus industry in the island. There is a need for the implementation of an integrated management program to deal with the disease and establishment of a certification program to produce disease free trees. Losses due to CG required the intervention of Extension Specialists and Agents to deliver an educational program to growers to address the problems confronted by growers with farms severely affected by the disease.

#### **What has been done**

Extension agents in collaboration with the Fruit Specialist and the IPM Specialist trained 315 citrus growers in Citrus Greening Integrated Management (CGIM) with emphasis on chemical management of the psyllid vector and establishment of a specific fertilizer program. The educational program consisted of field days in farms of affected growers, workshops, and routine visits of Extension agents to growers to assess the efficiency of the educational program and provide follow up in the use of the recommended management practices. The PR Department of Agriculture enforced an application program in citrus to address the problem in collaboration with Extension personnel in order to help growers in the implementation of CGIM.

#### **Results**

The educational program delivered is showing positive results with an increase in the understanding of the Citrus Greening disease by growers, and the use of recommended management strategies including a specific fertilizer program and chemical control of the psyllid by 60% of the citrus growers impacted by the educational program.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems
405	Drainage and Irrigation Systems and Facilities
604	Marketing and Distribution Practices

## **Outcome #12**

### **1. Outcome Measures**

Number of producers that increased production in citrus.

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	50

### **3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
216	Integrated Pest Management Systems
601	Economics of Agricultural Production and Farm Management
602	Business Management, Finance, and Taxation
604	Marketing and Distribution Practices

## **V(H). Planned Program (External Factors)**

### **External factors which affected outcomes**

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

### **Brief Explanation**

Crop production was affected by key pests. Citrus greening, Black Sigatoka in plantain and a new viral disease in vegetables caused by a tospovirus are the major constraints in production of crops of economic importance in Puerto Rico, increasing costs in fertilization and management of the insect vectors. During 2013, high rainfall events and high temperatures promoted the presence of diseases that affected vegetable and plantain production. In areas where there was an increase in outcomes PRAES worked jointly with Puerto Rico Agriculture Experiment Station researchers to convey the importance and benefits of applying better management practices and IPM. The number of producers trained in banana and plantain, citrus and coffee management was lower than in 2012. In 2012 the increase in the number of producers trained was high because as a result of an educational program in Black sigatoka management, citrus greening and coffee berry borer.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

No evaluation conducted in 2013. An evaluation on herb IPM and Citrus Greening IPM will be included on FY 2014.

### **Key Items of Evaluation**

**V(A). Planned Program (Summary)**

**Program # 2**

**1. Name of the Planned Program**

Animal Systems

Reporting on this Program

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	5%			
132	Weather and Climate	5%			
133	Pollution Prevention and Mitigation	5%			
301	Reproductive Performance of Animals	15%			
302	Nutrient Utilization in Animals	10%			
303	Genetic Improvement of Animals	10%			
306	Environmental Stress in Animals	10%			
311	Animal Diseases	5%			
313	Internal Parasites in Animals	5%			
315	Animal Welfare/Well-Being and Protection	10%			
401	Structures, Facilities, and General Purpose Farm Supplies	10%			
405	Drainage and Irrigation Systems and Facilities	5%			
601	Economics of Agricultural Production and Farm Management	5%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

**1. Actual amount of FTE/SYs expended this Program**

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	16.9	0.0	0.0	0.0
Actual Paid Professional	15.8	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
853939	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
298684	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

- Conduct seminars, meetings, trainings and workshops
- Farm visits
- Educational material (publications, newsletters, CDs)
- Develop proposals to find external resources as a means to conduct applied research to address the current needs in livestock production
  - Offer counseling and orientation
  - Work in collaboration with communication media
  - Establish collaborations with government agencies (e.g., 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)
    - Improve collaboration with our partners at the University of Puerto Rico and other educational institutions
    - Develop educational material consisting of model plans and educational material (publications, newsletters, CDs)

**2. Brief description of the target audience**

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

**3. How was eXtension used?**

www.extension.org has been used as a source of information by Extension Specialists to complement training presentations and materials offered to Extension Agents as well as professional development material.

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	5319	2159	2363	397

**2. Number of Patent Applications Submitted (Standard Research Output)**  
**Patent Applications Submitted**

Year: 2013  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2013	Extension	Research	Total
<b>Actual</b>	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of farmers trained in recommended bio-security practices as a means to mitigate diseases and increase animal production.

Year	Actual
2013	390

**Output #2**

**Output Measure**

- Number of farmers trained in animal welfare and protection.

Year	Actual
2013	855

**Output #3**

**Output Measure**

- Number of farmers trained in recommended practices in recordkeeping, disease control and prevention, and feed utilization.

<b>Year</b>	<b>Actual</b>
2013	546

**Output #4**

**Output Measure**

- Number of dairy-beef farmers trained in recommended practices that are efficient against internal parasites in Puerto Rico.

<b>Year</b>	<b>Actual</b>
2013	329

**Output #5**

**Output Measure**

- Number of farmers trained in the effects of climate change on livestock production.

<b>Year</b>	<b>Actual</b>
2013	267

**Output #6**

**Output Measure**

- Number of farmers trained in the implementation of alternative crops/forages as a means to improve nutrient utilization in livestock production.

<b>Year</b>	<b>Actual</b>
2013	358

**Output #7**

**Output Measure**

- Number of farmers trained in recommended economic practices associated with efficiency in livestock production.

<b>Year</b>	<b>Actual</b>
2013	188



**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of farmers that adopted a bio-security program.
2	Number of farmers that adopted practices in animal welfare and protection.
3	Number of farmers that increased animal production after adopting the recommended recordkeeping, disease control and prevention, and feed utilization practices.
4	Number of farmers that adopted practices for the control of parasites on their farms.
5	Number of farmers that adopted one or more practices to control heat stress.
6	Number of persons that improved the nutrient utilization practices in animals.
7	Number of farmers and agricultural entrepreneurs that used economic tools to make effective economic decisions to improve their business.

### **Outcome #1**

#### **1. Outcome Measures**

Number of farmers that adopted a bio-security program.

#### **2. Associated Institution Types**

- 1862 Extension

#### **3a. Outcome Type:**

Change in Action Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	178

#### **3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
311	Animal Diseases
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection

### **Outcome #2**

#### **1. Outcome Measures**

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

#### **2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	353

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
133	Pollution Prevention and Mitigation
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
311	Animal Diseases
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection

**Outcome #3**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	301

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The economic crisis that our Island is currently undergoing has forced many farmers to look for options to increase their income in order to provide their families. In some occasions, the loss of one family member's job is compensated by expanding their operational facilities and increasing production level.

**What has been done**

The owner of a familiar pig farm with 15 sows in San Sebastian, Puerto Rico was interested in increasing their current production level and take advantage of the high local demand for pork meat. His local Extension Agent provided orientation and information about, plans and specifications for structures to raise pigs, disease control and biosecurity practices, waste disposal system, automated feeders, vaccination program and recordkeeping. In addition, workers were trained about drug dose and usage, castration techniques and canine teeth clipping.

**Results**

After being oriented, the farmer participated in various government agencies dedicated to train farmers, such as the Unit of Quality and High-Yield (UCAR) and other courses offered by Extension Service. After implementing what was learned in the waste disposal systems course, his disposal system was approved by the local Natural Resources Conservation Service. He was also assisted in the development of a proposal to obtain the resources from the Department of Agriculture to expand his farm. After successfully meeting all the requirements and having the proposal approved, which took around two years, the family pig farm started to expand their structures and now they possess one fattening and finishing structure that holds up to 2,000 pigs, another structure to hold up to 75 sows, and an office. In addition, they signed a contract with the School Food Services of the Public School System to sell their pigs.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
102	Soil, Plant, Water, Nutrient Relationships
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
306	Environmental Stress in Animals
311	Animal Diseases
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management

**Outcome #4**

**1. Outcome Measures**

Number of farmers that adopted practices for the control of parasites on their farms.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	151

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
303	Genetic Improvement of Animals
311	Animal Diseases
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection

**Outcome #5**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	122

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
303	Genetic Improvement of Animals
306	Environmental Stress in Animals
315	Animal Welfare/Well-Being and Protection
401	Structures, Facilities, and General Purpose Farm Supplies

**Outcome #6**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	84

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

The recent rise of grain prices has forced many dairy farmers to find alternative ways to feed their cows as a means reduce feeding costs. A dairy farmer from Hatillo, Puerto Rico (PR) feeding his animals (228 lactating cows) with commercial concentrate with 18% protein content (only ingredient required by law to be on the label) was concerned about fluctuations in milk yield and elevated costs associated with feeding concentrate (\$19.5 per quintal).

#### What has been done

He was oriented by the local Extension Agent about nutritional strategies to reduce feeding costs. He was advised to acquire a grinder and to buy ingredients to prepare his own mix. A diet was formulated with 62% corn, 20% soy, 15% wheat bran and 3% mineral mix and carbonate. Analysis results showed a 0.89 Mcal/lb and 21.7% protein content, 83% NDF and 10.7% humidity. The cost of producing the new feed formulation was \$16.6/quintal.

#### Results

Feed intake was reduced by 5 pounds per animal and milk production increased. He used to feed 31 pounds/cow with the commercial concentrate at \$0.190/lb, which represented \$5.89/cow/day or \$ 1,342/day. This translates to \$ 490,165/year in concentrate costs. After implementing the recommendations, he now feed 26 pounds/cow at \$0.166/lb, resulting in \$4.32/cow/day or \$ 984/day. This translates to \$359,177/year in concentrate costs, for \$130,988/year in savings. Milk rolling herd average production from DHIA records were 11,485 vs 11,975 before and after implementation, respectively, for an increase average production per cow of 490 pounds. Taking in consideration PR current milk price (\$0.80/L), he is making \$41,570 more per year by increasing milk production. Therefore, after the implementation of the recommendations made, this farmer has an income of \$172,558 extra per year. The farmer has reported no fluctuations in milk yield. Investigation of the frequency of disorders associated with metabolic stress (due to high grain intake) such as laminitis and low pregnancy rates could provide additional justification to convince dairy farmers in PR to implement this approach.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
306	Environmental Stress in Animals
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection
601	Economics of Agricultural Production and Farm Management

## **Outcome #7**

### **1. Outcome Measures**

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

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	101

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

The Dairy Industry of Puerto Rico (PR) is currently undergoing an economic crisis attributed to elevated costs of raw milk production and low demand for dairy products. This scenario has obligated milk processors to accommodate the raw milk price paid to farmers. For example, raw milk is paid in average at \$ 0.80/quart for 75% of the total quote. If the farmer exceeds 75% of the quote, farmers receive \$ 0.50/qts, which translates in a weighted average of \$0.70/qts.

#### **What has been done**

This situation has made a dairy farmer from Cayey, PR to make his dairy farm more sustainable and decided to establish a cheesemaking business as a means to increase the price of the milk he produces over 75% of his quote (he produces 21,500 qts. bimonthly which represents 100% of his quote).

#### **Results**

The farmer started using 1,200 qts. of milk bimonthly to make cheese, which correspond to 5.6% of his quote. He is producing mostly aged cheeses which sells at \$11.00/lb. With an average yield of 5.5qts of milk/1lb of aged cheese, he is making \$2,400 in sales bimonthly. When compared with the price he received by the milk he uses now for cheese production (1,200 qts. @ \$0.50 = \$600), he has an extra income of \$1,800 bimonthly. Assuming 50% of operational costs (i.e., 2 workers) he is now making \$21,600 annually vs \$7,200 he used to make with the milk produced over 75% of his quote. In order to dilute operational costs, he is planning to double the production of cheese to 2,400 qts. bimonthly in the current year, which will represent \$43,200 annually. Since most of the artisanal cheese is imported to the island extension personnel are working together with dairy farmers to evaluate sale strategies and projections of the expected customer demands for various cheese type and other dairy products .

## **4. Associated Knowledge Areas**



**KA Code**    **Knowledge Area**  
601            Economics of Agricultural Production and Farm Management

#### **V(H). Planned Program (External Factors)**

##### **External factors which affected outcomes**

- Other (Changes in educational activities participation numbers)

##### **Brief Explanation**

In the current report we observed an increase in the number of persons that adopted one or more recommended practices in outcomes shared between current and previous report (i.e., Biosecurity, Animal Welfare and Record Keeping). However, the number of direct and indirect adults and indirect young that were reached through the different divulgation methods was reduced. This could be due to educative activities or agricultural fairs of large participation, particularly intended for youth, that did not take place in 2013.

#### **V(I). Planned Program (Evaluation Studies)**

##### **Evaluation Results**

We are currently working together with the Dairy Herd Improvement Association to train our Extension Agents working with Dairy Farmers about creation of records using PC Dart. We expect to improve the quality and accuracy of the data collected in our online report system (SISE). In addition, together with personnel of the Experimental Station we are trying to increase efforts to improve the record keeping of other animal production systems. This is expected to be in place by FY 2015.

##### **Key Items of Evaluation**

**V(A). Planned Program (Summary)**

**Program # 3**

**1. Name of the Planned Program**

Family Well-being

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

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

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	20.9	0.0	0.0	0.0
Actual Paid Professional	22.7	0.0	0.0	0.0
Actual Volunteer	3.8	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1180579	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
412933	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

- Participate in radio/TV Programs
- Educational Campaign
- Curriculum and educational materials development.
- Provide Training
- Conduct Workshops meetings and courses.
- Establishment of collaborations
- Consulting
- Exhibitions (Billboards in malls and public places with informative brochures and other educational material).

**2. Brief description of the target audience**

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

**3. How was eXtension used?**

Extension was not used in this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	22284	7338	9830	899

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2013

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2013	Extension	Research	Total
<b>Actual</b>	1	0	1

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of persons trained in parenting and related areas.

<b>Year</b>	<b>Actual</b>
2013	2096

**Output #2**

**Output Measure**

- Number of persons trained in aging aspects.

<b>Year</b>	<b>Actual</b>
2013	1419

**Output #3**

**Output Measure**

- Number of persons that completed the Consumer Education course.

<b>Year</b>	<b>Actual</b>
2013	395

**Output #4**

**Output Measure**

- Number of persons that completed individual and family resource management course.

<b>Year</b>	<b>Actual</b>
2013	400

**Output #5**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2013	459

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

**Outcome #1**

**1. Outcome Measures**

Number of persons that reported improved parenting skills.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	1531

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Family violence, child maltreatment and abuse in Puerto Rico show an increase tendency and a huge social problem. (PR Census 2010)

**What has been done**

To work this issue the Family Life and Child development Specialist developed an educational campaign at state wide, including mass media and establishment of collaborations with government agencies, institutions and community faith base leaders. Also, Extension educators of the FCS Extension program implemented and developed educational campaigns in their municipalities during the months of November(National Family Month),and April (National Prevention month of Child maltreatment and abuse)

**Results**

As result of that, 99 educational campaigns were developed. Through the dissemination of information (workshops, information centers ,courses, and others educational methodologies) 22,281 individuals and families were benefit, and 235 collaborations were established.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
607	Consumer Economics
724	Healthy Lifestyle
801	Individual and Family Resource Management
802	Human Development and Family Well-Being

**Outcome #2**

**1. Outcome Measures**

Number of persons that gained knowledge in aging aspects.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2013	976

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
802	Human Development and Family Well-Being

**Outcome #3**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	403

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
801	Individual and Family Resource Management

**Outcome #4**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	298

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**



**KA Code**    **Knowledge Area**  
724            Healthy Lifestyle

**Outcome #5**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	370

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
607            Consumer Economics

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

- Economy
- Other (retirement of FCS personnel)

**Brief Explanation**

This planned program continues with a vacancy for an Consumer Education Specialist due to economic changes.

**V(I). Planned Program (Evaluation Studies)**

**Evaluation Results**

An evaluation is planned for fiscal year 2014-2015 through the methodology of focus groups and clientele interviews to determine developed skills and adopted practices after the educational intervention.

**Key Items of Evaluation**

**V(A). Planned Program (Summary)**

**Program # 4**

**1. Name of the Planned Program**

Food Safety

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

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

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	7.4	0.0	0.0	0.0
Actual Paid Professional	8.3	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
431525	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
150935	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

1. Brief description of the Activity

- Worked in collaboration with communication media.
- Continued working in partnership with other agencies to develop educational programs.
- Offered Safe Food Handling Curriculum to consumers. This curriculum includes Food safety for pregnant women, food safety around the year, and food safety during emergencies.
  - Exhibitions, information centers, radio shows, among others.
  - Offered 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. Brief description of the target audience**

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

**3. How was eXtension used?**

Extension was not used in this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	11723	3755	453	0

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2013  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2013	Extension	Research	Total
<b>Actual</b>	1	0	1

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2013	1040

**Output #2**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2013	3559

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

## **Outcome #1**

### **1. Outcome Measures**

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

### **2. Associated Institution Types**

- 1862 Extension

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	814

### **3c. Qualitative Outcome or Impact Statement**

#### **Issue (Who cares and Why)**

According to Byrd-Bredbenner, et al (2013) home is associated with significant foodborne illness risks for various reasons. One of them is because people mostly obtain their food from the home environment. Another is because many are susceptible population. In Puerto Rico 11.4% are 65 years old and over and 7.8% are children 5 years or under (Census, 2010). There are almost 38,000 pregnant women every year and at least 1% of the populations have medical conditions that make put them more at risk. The third factor is that consumers do not perceive themselves at risk. Food handling and family and consumer science courses have become less common in schools, so teenagers and young adults may lack food safety education.

#### **What has been done**

PRAES Home Economists offer Families be food safe curriculum. This curriculum includes three units that consist of 11 lessons from which Home economists select and customize their course according to their clientele's needs. Among the topics covered are: Four steps for Food safety, food safety for mom's to be and moms with infants, food safety for susceptible population, food safety during emergencies, and safe handling at the vegetable garden.

#### **Results**

From the 1040 consumers that completed Families be food safe curriculum 78% reported adopting at least one safe food handling practice. 74% cleaned and sanitized the food contact surfaces; 82% washed their hands frequently; 69% avoided cross contamination; 69% used a food thermometer to measure cooking temperatures; 54% reduced the time food was exposed to dangerous temperatures; 8 pregnant women adopted safe food handling practices and 8 breast feeding moms adopted safe handling practices when handling breast milk.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #2**

**1. Outcome Measures**

Number of participants that approved the certification exam.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	3440

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The Puerto Rico Health Department (PRHD) adopted FDA's Food Code in the year 2000. Food Code requires that Food Managers (FM) of a Food Establishment must demonstrate knowledge on safe food handling practices and have approved an Food safety course. PRHD require the all person in charge of a Food Establishment renew this course every three years so that the FM updates their knowledge any time the Food Code suffer changes. The PRHD's main objective is to reduce outbreaks due to foodborne illnesses.

**What has been done**

PRAES Certified Food safety instructors offered Food safety Course consisting of 13 lessons. PR Health Department Inspectors participated in these courses speaking about Puerto Ricos Regulation for Food Establishments and what are they looking for when performing an inspection. Food safety course cover the knowledge areas required by the Food Code 2009 and Food Defense.

**Results**

3559 Food Managers completed the Food Safety course. 97% approved the examination test with 70% or above. This test measures the knowledge that participants obtain on the topics that the Food Code require for the person in charge of a food establishment.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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712 Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #3**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2013	2359

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

PR Health Department adopted the Food Code, regulation in which the Person in Charge (PIC) must demonstrate knowledge in different food safety and should also supervise the employees that work in the food establishment. Health inspectors have the task of looking after the public health and they verify that PIC have the knowledge and that they are applying these concepts in the Food Establishment in order to minimize the risk of foodborne illnesses.

**What has been done**

PRAES Certified Food safety instructors offered Food safety Course consisting of 13 lessons. PR Health Department Inspectors participated in these courses speaking about Puerto Rico's Regulation for Food Establishments and what are they looking for when performing an inspection. Food safety course cover the knowledge areas required by the Food Code 2009 and Food Defense.

**Results**

After completing the course, results showed that 58% of Food Managers prepared a plan for temperature controlling of foods that require control of time and temperature for their safety; 77% of participants washed their hands frequently; 66% used separate cutting boards; 50% used a food thermometer, 52% used disposable gloves when working with ready to eat foods; 66% used hot soapy water when washing their dishes and sanitized in the third compartment of the dishwashing sink; 59% of participants used a safe method for thawing; 54% kept hot food at 135°F or above; 58 % required health certificate to their employees.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

#### **V(H). Planned Program (External Factors)**

##### **External factors which affected outcomes**

- Economy
- Other (Retirement of Health Inspectors)

##### **Brief Explanation**

Due to the economic crisis which has also impacted on the establishment of a new retirement law, many Health Inspectors from the Puerto Rico's Health Department, retired during this fiscal year because of this new retirement law. These inspectors are important collaborators to our Planned Program as they promote the importance of the Certification Course among Food Managers in addition to provide follow up on compliance with the food safety regulations.

#### **V(I). Planned Program (Evaluation Studies)**

##### **Evaluation Results**

The purpose of the evaluation was to measure knowledge gained by persons in charge of food establishments after completing the Food Safety Course. This result is presented in Outcome #2 which shows that 97% approved the food safety certification exam.

##### **Key Items of Evaluation**

**V(A). Planned Program (Summary)**

**Program # 5**

**1. Name of the Planned Program**

Strengthening Youth Life Skills, Leadership and their Community

Reporting on this Program

**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%			
	<b>Total</b>	100%			

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	30.7	0.0	0.0	0.0
Actual Paid Professional	34.4	0.0	0.0	0.0
Actual Volunteer	28.9	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1789608	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
625954	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

1. Brief description of the Activity

- 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. Brief description of the target audience**

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

**3. How was eXtension used?**

Extension was not used in this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	4426	0	37358	20407

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2013  
Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2013	Extension	Research	Total
<b>Actual</b>	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2013	4337

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

**Outcome #1**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	1486

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #2**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	2362

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #3**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	2947

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**



## Results

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

#### Outcome #4

##### 1. Outcome Measures

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

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2013	1648

##### 3c. Qualitative Outcome or Impact Statement

###### **Issue (Who cares and Why)**

Puerto Rican's youth faces health problems related to bad food choices that affects their nutritional well-being.

###### **What has been done**

The Puerto Rico Youth Voice, Youth Choice Project reached 2,691 participants with different educational strategies which included workshops, exhibits, summer camps, fairs, community service activities, in and after school enrichment programs and during regular school hours as part of a class.

The PR 2012 4H Route for Healthy Living provided participants with five important themes; two on Home Gardening and three on healthy lifestyles that included Choose My Plate, Food Preparation and Physical Activity

###### **Results**

Various success stories from the project have shown positive results. One mother indicated that her son, ten years old, had changed all of his habits when it comes to eating. "Since he has been participating in the program, he does not allow us to fry any food or consume food with high fat content. He is always pointing out the importance of reading the nutritional labels on food

products and teaching us how to do it. His father is diabetic and he has assumed the responsibility of supervising what his father eats and buys."

An employee in charge of one of the Schools Lunch Areas, commented; "Now when the students come for breakfast or lunch they tell us which group of foods were not included in their plates. We have to be careful! They also watch each other to make sure they avoid junk food and sodas!"

During the 4H Teen Teachers Training, one of the participant realized that his overweight problem was the result of his bad food choices. After eliminating completely sodas from his diet, increasing water consumption and starting to eat more vegetables and grains in his meals, he noticed he had lost twelve pounds in four months. His mother also mentioned that "he is more active, looks better and has better self-esteem. This Program made real changes in my son's life and he is healthier than ever!"

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

#### **V(H). Planned Program (External Factors)**

##### **External factors which affected outcomes**

- Other (Personnel Retirement)

##### **Brief Explanation**

#### **V(I). Planned Program (Evaluation Studies)**

##### **Evaluation Results**

To evaluate how the 4-H Program has promoted changes in life skills among its member, a pre/post evaluation study was conducted among 129 new 4Hers members in our 4-H club. The pre-test questionnaire was administered right at their initiation in the clubs, before participating in any educational activities. Post-tests were administered after a minimum of six months in the clubs. These new 4Hers members participated in different 4-H educational activities including: short courses, field trips, state conferences, contests and camps among others. These 4Hers are within the ages of 10 to 17 years old.

The questionnaires determine changes on the following life skills: decision making, communication, problem solving, goal setting, teamwork and planning and organization.

The results showed a significant increase ( $p < 0.5$ ) in all of these life skills after having been members of the 4-H club. Changes in life skills from pre and post are presented in the following data.

PRE	POST		
decision making		3.56	3.97
communication		3.47	3.81
problem solving		3.64	4.09
goal setting		3.95	4.30
teamwork		3.87	4.13
planning & organization		3.63	4.13

(5=always, 4=almost always, 3=sometimes 2=almost never, 1=never)

These results showed that participation in 4-H clubs significantly contributes to the development of critical life skills for positive youth development in our youngsters.

#### Key Items of Evaluation

### Changes in life skills of 4H members

**V(A). Planned Program (Summary)**

**Program # 6**

**1. Name of the Planned Program**

Community Resources Development by Means of Fostering Sustainable Communities

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

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

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	26.9	0.0	0.0	0.0
Actual Paid Professional	28.6	0.0	0.0	0.0
Actual Volunteer	12.7	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1486134	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
519807	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

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

**2. Brief description of the target audience**

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

**3. How was eXtension used?**

Extension was not used in this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	15722	4807	1780	0

**2. Number of Patent Applications Submitted (Standard Research Output)**  
**Patent Applications Submitted**

Year: 2013  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

<b>2013</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	4	0	4

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of persons trained in community-based business.

<b>Year</b>	<b>Actual</b>
2013	404

**Output #2**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2013	328

**Output #3**

**Output Measure**

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

<b>Year</b>	<b>Actual</b>
2013	273

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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 Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2013	287

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Puerto Rico continues experiencing a negative economic growth. 2013 is the eighth year in a row in red numbers which was exacerbated by the closure of the Federal Government. Puerto Rico's CRD continues working hard in training and developing community entrepreneurs to create new, and expand existing markets.

**What has been done**

The Community Entrepreneurial Tool Box has been in place for six years, and the number of participants that are putting in place the recommended practices continues growing from 250 to close to 290 persons per year.

**Results**

In 2013, 71% of the participants trained in community-based business have applied one or more of the recommended practices in the process of developing a community-based business. "The Community Entrepreneurial Tool Box" has been in place for 6 years and we have stabilized the number of participants who have been trained in entrepreneurial and business creation skills with those implementing the skills and practices learned as the result of the training process in a 7/10 ratio. Among the most significant skills put in place are: the formulation of market need assessment, marketing plan, break-even point analysis and financial plans among others.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development



**Outcome #2**

**1. Outcome Measures**

Number of community-based businesses established.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	37

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

The "Community Entrepreneurial Toolbox" continues providing the opportunity to our stakeholders (who benefit from short courses and training opportunities in Agriculture and Family Sciences) to use the acquired skills and knowledge to promote economic activity and market their skills. Therefore opening new business and community based economic production activities that results in new sources of income and jobs creation. Federal Government closure had an effect in some initiatives being worked in alliance with the Puerto Rico Office of the US Rural Development Community Facilities Program.

**What has been done**

Stakeholders have been widely trained on the "Community Entrepreneurial Toolbox" workshop series together with other marketable skills in the areas of artisanship, craftsmanship, tailoring, children and elderly services, and agricultural production.

**Results**

This year there has been a slight reduction to the 40 plus business a year rate we have been maintaining for the past 4 years. We esteem that the closure of the US. Federal Government during 2013 might have had a direct impact in this observed reduction. CRD's strategy of providing entrepreneurial training to those stakeholders who benefit from PRAES other courses which provides marketable skills in family science and agriculture has resulted effective. Most of these community-based and micro-business being created are in areas of agricultural production, food confection, and services closely related to the Agriculture, as well as Family Science curricula. Management of Community Water System Facilities (NONPRASA water systems) continues to be the area of biggest growth being reported. These initiatives have resulted in the creation of 56 new permanent jobs, 13 proposals approved and has provided additional income to 722 participants.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development

**Outcome #3**

**1. Outcome Measures**

Number of community projects established to benefit the community.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	62

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
805	Community Institutions, Health, and Social Services

**Outcome #4**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	331

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
803	Sociological and Technological Change Affecting Individuals, Families, and Communities

**Outcome #5**

**1. Outcome Measures**

Number of communities that developed an emergency and safety plan.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	9

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

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

**Brief Explanation**

The continuing economic recession, exemplified by the closure of the Federal Government for over two weeks, had its effect mostly in a mild reduction of stakeholders continuing their business plans and in pursuing the necessary tasks in the process of submitting grants and applications for community enterprises and facility funds. At home, the expected degradation of Puerto Rico's Government bonds, led to a Government's implantation of even wider and more encompassing austerity measures that difficult the identification of small business and community oriented economic ventures, although (on the other side) it provides more participants to our programs oriented toward economic development and entrepreneurial skills development.

**V(I). Planned Program (Evaluation Studies)**

**Evaluation Results**

During FY 2012 an evaluation of the Economic Development component was held. Our evaluation plan calls for evaluations every two years. During FY 2014 we will be conducting an evaluation of the emergency and safety plan program.

**Key Items of Evaluation**

**V(A). Planned Program (Summary)**

**Program # 7**

**1. Name of the Planned Program**

Climate Change

Reporting on this Program

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

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

**V(C). Planned Program (Inputs)**

**1. Actual amount of FTE/SYs expended this Program**

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	8.4	0.0	0.0	0.0
Actual Paid Professional	9.8	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
508045	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
177699	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

- Capacity building workshops
- Technical training meetings
- Mass media use to disseminate information
- Collaboration with local, state and federal government agencies

**2. Brief description of the target audience**

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

**3. How was eXtension used?**

Extension was not used in this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	1679	435	0	0

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2013

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2013	Extension	Research	Total
<b>Actual</b>	2	0	2

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of people who received capacity development (workshops, seminars, conferences) on climate change.

<b>Year</b>	<b>Actual</b>
2013	741

**Output #2**

**Output Measure**

- Number of people who received capacity development (workshops, seminars, conferences) on water quality, watershed protection, and maintenance.

<b>Year</b>	<b>Actual</b>
2013	322

**Output #3**

**Output Measure**

- Number of people who received capacity development (workshops, seminars, conferences) on water collection, storage and re-use for agricultural purposes.

<b>Year</b>	<b>Actual</b>
2013	214

**Output #4**

**Output Measure**

- Number of people who received capacity development in agroforestry, soil erosion, and storm water runoff control.

<b>Year</b>	<b>Actual</b>
2013	352

**Output #5**

**Output Measure**

- Number of people who received capacity development on soil erosion and water environmental regulations.

<b>Year</b>	<b>Actual</b>
2013	176

**Output #6**

**Output Measure**

- Number of persons who received capacity development on prevention of brush fires and pasture management.

Not reporting on this Output for this Annual Report



**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

### **Outcome #1**

#### **1. Outcome Measures**

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

#### **2. Associated Institution Types**

- 1862 Extension

#### **3a. Outcome Type:**

Change in Action Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	242

#### **3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
125	Agroforestry

### **Outcome #2**

#### **1. Outcome Measures**

Number of people who established watershed protection practices.

#### **2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	161

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
125	Agroforestry

**Outcome #3**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	123

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Generally in Puerto Rico, the rainfall ranges between 55 and 80 inches, but we have experienced drought at a small scale which severely affected the agricultural production costing millions of dollars in revenue.

#### What has been done

Educational material was prepared on rain water harvesting and storage for farm use. This educational material was utilized for training courses for Extension professionals and later farmers training.

#### Results

First creating awareness of this preventive measure and then, encourage farmers to adopt this practice as an adaptation preparation to cope with a changing climate.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
125	Agroforestry

### Outcome #4

#### 1. Outcome Measures

Number of people who adopted agroforestry practices.

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2013	118

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

#### What has been done

## Results

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
125	Agroforestry

### Outcome #5

#### 1. Outcome Measures

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

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2013	215

#### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

**What has been done**

**Results**

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
125	Agroforestry

**Outcome #6**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	92

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
125	Agroforestry

**Outcome #7**

**1. Outcome Measures**

Number of people who adopted one or more practices to prevent brush fires and forest fires.

Not Reporting on this Outcome Measure

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

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

**Brief Explanation**

{No Data Entered}

**V(I). Planned Program (Evaluation Studies)**

**Evaluation Results**

The evaluation is been proposed to be conducted for next year (2014-2015)

**Key Items of Evaluation**

**V(A). Planned Program (Summary)**

**Program # 8**

**1. Name of the Planned Program**

Sustainable Energy

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

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

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	6.1	0.0	0.0	0.0
Actual Paid Professional	6.8	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
353965	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
123807	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0



**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

- Include in our workshops and meetings aspects of alternative or sustainable energy with emphasis on structures, waste management and irrigation equipment, and energy conservation and efficiency.

- Establish collaborations with government agencies (Puerto Rico Electric Power Authority; Environmental Quality Board; Departments of Agriculture, Environmental and Natural Resources, and Education; Puerto Rico Aqueducts and Sewage Authority; USEPA; USDA; NRCS; and others) and with our partners in the University of Puerto Rico and other educational institutions.

- Design and make plans that include and promote energy sustainability and efficiency in structures, waste management systems and irrigation systems (new facilities or improvement to existing facilities).

**2. Brief description of the target audience**

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

**3. How was eXtension used?**

We recommended Extension to clients an excellent source of information

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	2435	1308	0	0

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2013

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

<b>2013</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of workshops and meetings offered which include aspects of alternative energy systems and efficiency.

<b>Year</b>	<b>Actual</b>
2013	20

**Output #2**

**Output Measure**

- Number of collaborators from government agencies, partners in the University of Puerto Rico, and other educational institutions.

<b>Year</b>	<b>Actual</b>
2013	22

**Output #3**

**Output Measure**

- Number of designs and plans that include and promote alternative energy systems or sustainability and efficiency in structures, waste management systems, and irrigation systems (new facilities or improvement to existing facilities).

<b>Year</b>	<b>Actual</b>
2013	53

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

**Outcome #1**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	1087

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
405	Drainage and Irrigation Systems and Facilities

**Outcome #2**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	15

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
405	Drainage and Irrigation Systems and Facilities

**Outcome #3**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
-------------	---------------

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

The dairy industry is the most important agricultural industry in Puerto Rico. The last year it has been affected mainly by the continued increase in energy costs. The milk collection process in cowherds still depends on high energy consumption equipment or is inefficient (ie. Cooling systems, vacuum pumps and transfers systems). During 2013, the average Kwh in \$0.276, which is 2.5 times higher than the USA average (except Hawaii) \$0.11/kwh. This has forced several farmers to operate without profit and reduce labor.

#### What has been done

A training program for agricultural agents was established to disseminate the educational message about efficient use of electricity to the owners of agricultural enterprises. The program include training on energy efficiency and solar energy systems. During the last trimester of 2013, we conducted a survey to the clientele (dairy farmers) to assess the results of this program.

#### Results

We survey 110 dairy farms from a total of 312 in operation last year in Puerto Rico. As a result, during last year almost 57 dairy farm owners in Puerto Rico established high efficiency equipment, 50 establish variables speed drives in the vacuum line, 21 replace old motor for new more efficient and almost 7 dairy farms establish solar energy on their facilities. Those changes translates into savings of \$900,000.00 annually in the electrical bill, to achieve a reduction of 39% in the use of energy.

### 4. Associated Knowledge Areas

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

### V(H). Planned Program (External Factors)

#### External factors which affected outcomes

- Economy
- Public Policy changes
- Competing Programmatic Challenges
- Other (Availability economic incentives)

#### Brief Explanation

Due to high production costs, compared to other States in the nation, energy is one of the priorities of stakeholders in Puerto Rico. We were impacted adversely by the global economic downturn. The effects were observed during the past years, when we are in a declining economy with a low creation rate of well-paid jobs and a high unemployment rate. Consequently the public in general does not feel economically secure. It was not until

2012, that we saw the economy gradually begin to recover.

However, in part due to the recession, and on the other hand, to competition and the availability of financial incentives, stakeholders were shy or did not dare to invest their money in sustainable technology. Also, high transportation costs, which are added to the costs of equipment, from the US to Puerto Rico make the installation of green technology poorly viable.

We understand that, until the Government makes changes in public policy to facilitate the use of this technology and offers greater incentives for their purchase and installation, we will not see a very strong growth in this sector. However, we have managed that our clientele save in energy costs by making small changes like changing light fixtures, using energy-efficient equipment or changing their behavior and using less energy while operating them.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

We survey 110 dairy farms from a total of 312 in operation last year in Puerto Rico. As a result, during last year almost 57 dairy farm owners in Puerto Rico established high efficiency equipment, 50 establish variables speed drives in the vacuum line, 21 replace old motor for new more efficient and almost 7 dairy farms establish solar energy on their facilities. Those changes translates into savings of \$900,000.00 annually in the electrical bill, to achieve a reduction of 39% in the use of energy.

### **Key Items of Evaluation**

**V(A). Planned Program (Summary)**

**Program # 9**

**1. Name of the Planned Program**

Global Food Security and Hunger

Reporting on this Program

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

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

**V(C). Planned Program (Inputs)**

**1. Actual amount of FTE/SYs expended this Program**

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	9.5	0.0	0.0	0.0
Actual Paid Professional	3.7	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

**2. Actual dollars expended in this Program (includes Carryover Funds from previous years)**



Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
193119	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
67548	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

- Capacity building workshops
- Technical training meeting
- Establish collaborations between the government, the private sector and the academia
- Use of mass media to disseminate information

**2. Brief description of the target audience**

County Extension professionals, farmers, agro entrepreneurs, government professionals, housewives, and youth.

**3. How was eXtension used?**

Extension was not used in this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	5283	1728	2902	0

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2013  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

<b>2013</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	0	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of agricultural enterprises feasibility studies.

<b>Year</b>	<b>Actual</b>
2013	33

**Output #2**

**Output Measure**

- Number of youth participating in food system educational program.

<b>Year</b>	<b>Actual</b>
2013	1633

**Output #3**

**Output Measure**

- Number of adults participating in food system knowledge and skill enhancement programs.

<b>Year</b>	<b>Actual</b>
2013	6464

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of individuals that increased their knowledge about international trade and development.
2	Number of public policy issues related with national food security that were reviewed or proposed.
3	Number of farmers that adopted one or more recommended post-harvest practices.
4	Number of fallow "cuerdas"(acres) sowed or prepared for animal production or other agricultural production.
5	Number of consumers that adopted the food basket as a guide for food security at the household level.
6	Number of home gardens established.
7	Number of acres in conservation tillage or other BMP.
8	Number of new or improved value-added products that can be sold by producers (and other members of the food supply chain).
9	Number of marketing agreements established between local farmers and distributors or other components of the food supply chain.
10	Number of producers (and other members of the food supply chain) that have increased revenue.
11	Number of first detectors trained in early detection and rapid response of plant pests, animal pests, and diseases.
12	Number of communities trained in agricultural disaster preparedness.
13	Number of communities that have written agriculture and food considerations into disaster preparedness plans or procedures.
14	Number of networks prepared to mitigate biological and abiotic disruptions
15	Number of youth that improved knowledge of food systems.
16	Number of adults improved knowledge of food systems.
17	Number of food councils and institutes created to promote practical food systems policies.

18	Number of research and extension advisory councils and boards.
19	Number of communities that retained farm lands due to educational interventions.
20	Number of food security extension publications and presentations.

**Outcome #1**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2013	753

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
606	International Trade and Development
704	Nutrition and Hunger in the Population

**Outcome #2**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2013	16

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
131	Alternative Uses of Land
610	Domestic Policy Analysis
704	Nutrition and Hunger in the Population

**Outcome #3**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	139

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
501	New and Improved Food Processing Technologies

**Outcome #4**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	706

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
307	Animal Management Systems

**Outcome #5**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	279

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
704	Nutrition and Hunger in the Population

**Outcome #6**

**1. Outcome Measures**

Number of home gardens established.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	1143

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
704	Nutrition and Hunger in the Population

**Outcome #7**

**1. Outcome Measures**

Number of acres in conservation tillage or other BMP.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure



**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	1220

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems
307	Animal Management Systems

**Outcome #8**

**1. Outcome Measures**

Number of new or improved value-added products that can be sold by producers (and other members of the food supply chain).

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	39

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies

#### Outcome #9

##### 1. Outcome Measures

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

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2013	15

##### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

**What has been done**

**Results**

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
603	Market Economics

#### Outcome #10

##### 1. Outcome Measures

Number of producers (and other members of the food supply chain) that have increased revenue.

##### 2. Associated Institution Types

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	764

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
603	Market Economics

**Outcome #11**

**1. Outcome Measures**

Number of first detectors trained in early detection and rapid response of plant pests, animal pests, and diseases.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	4

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
205	Plant Management Systems
307	Animal Management Systems

**Outcome #12**

**1. Outcome Measures**

Number of communities trained in agricultural disaster preparedness.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	19

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
704	Nutrition and Hunger in the Population

### **Outcome #13**

#### **1. Outcome Measures**

Number of communities that have written agriculture and food considerations into disaster preparedness plans or procedures.

#### **2. Associated Institution Types**

- 1862 Extension

#### **3a. Outcome Type:**

Change in Action Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	7

#### **3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
610	Domestic Policy Analysis

### **Outcome #14**

#### **1. Outcome Measures**

Number of networks prepared to mitigate biological and abiotic disruptions

#### **2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	2

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
610	Domestic Policy Analysis

**Outcome #15**

**1. Outcome Measures**

Number of youth that improved knowledge of food systems.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	3472

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

## Results

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
704	Nutrition and Hunger in the Population

### Outcome #16

#### 1. Outcome Measures

Number of adults improved knowledge of food systems.

#### 2. Associated Institution Types

- 1862 Extension

#### 3a. Outcome Type:

Change in Action Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2013	5297

#### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

**What has been done**

**Results**

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
704	Nutrition and Hunger in the Population

**Outcome #17**

**1. Outcome Measures**

Number of food councils and institutes created to promote practical food systems policies.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2013	7

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
610	Domestic Policy Analysis

**Outcome #18**

**1. Outcome Measures**

Number of research and extension advisory councils and boards.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure



**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	2

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
610	Domestic Policy Analysis

**Outcome #19**

**1. Outcome Measures**

Number of communities that retained farm lands due to educational interventions.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	6

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
131            Alternative Uses of Land

**Outcome #20**

**1. Outcome Measures**

Number of food security extension publications and presentations.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	120

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

**KA Code**    **Knowledge Area**  
606            International Trade and Development

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

- Other (change in personnel)

**Brief Explanation**

During FY 2013, our Agents implemented the new curricular guide on Food Security. There were many educational activities developed, in addition to short courses, such as agricultural fairs conferences. Unlike, short courses, which are offered to small groups of individuals, conferences and fairs are attended by a larger group of

people. Therefore, with less FTEs we were able to reach more persons with the purpose to create awareness about this important issue. On the other hand we had no publications since our Food Security specialists, the person in charge of developing and coordinating publications was named Secretary of Agriculture of Puerto Rico on January 2013.

#### **V(I). Planned Program (Evaluation Studies)**

##### **Evaluation Results**

No formal evaluation was conducted for this fiscal year. However, outcomes 5, 6 and 9 provide data related to the goals of this planned program.

##### **Key Items of Evaluation**

**V(A). Planned Program (Summary)**

**Program # 10**

**1. Name of the Planned Program**

Childhood Obesity

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

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

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	8.0	0.0	0.0	0.0
Actual Paid Professional	8.5	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
443498	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
155123	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

1. Brief description of the Activity

- Offered courses on nutrition and physical activity for children/youth and their parents or caregivers.
- Developed joint action at community level to promote and implement physical activity programs and nutrition education for parents and kids. Teach about school breakfast, lunch, and snacks in schools and other institutions to comply with communication 2-2007-2008 that rules expenditure and consumption of food and beverages minimum nutritional value.
  - Taught retailer close to schools about best food offer according to the Puerto Rico's Kids Food Pyramid to help them comply with Bill No. 91, August 20, 1997, Free School Zone that prohibits expenditure of food with lower nutritional value close to schools.
  - Promoted discretionary calories food control.
  - Developed "train-the-trainer "courses and hands-on education in nutrition, physical activity and gardening, for professionals ( teachers, home economist, extension personnel, agricultural agents, among others)
  - Curriculum development and education in the areas of obesity prevention for adults and children. The following course curriculum were prepared and provided to the Extension professionals. These are: 1) "Tomando Control para la Sana Alimentación" (adult obesity prevention curriculum); 2) "Muévete a la Sana Alimentación" (childhood obesity prevention curriculum).

**2. Brief description of the target audience**

Children/youth and their families.

**3. How was eXtension used?**

Extension was not used in this program.

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	8281	12120	5859	340

**2. Number of Patent Applications Submitted (Standard Research Output)**

**Patent Applications Submitted**

Year: 2013  
 Actual: 0

**Patents listed**

None

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

<b>2013</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	2	0	2

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Number of children and youth that completed non-formal nutrition and physical activity education courses.

<b>Year</b>	<b>Actual</b>
2013	2066

**Output #2**

**Output Measure**

- Number of adults/caregivers that completed non-formal nutrition and physical activity education courses.

<b>Year</b>	<b>Actual</b>
2013	2572

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Number of children and youth that reported eating more healthy foods.
2	Number of adults/caregivers that reported eating more of healthy foods.
3	Number of children and youth that reported eating less of foods/food components which are commonly eaten in excess.
4	Number of children and youth that reported increasing their physical activity.
5	Number of children and youth that reported engaging daily in 60 minutes or more of physical activity.
6	Number of adults/caregivers that understand the benefits of spending time together in physical activity.
7	Number of adults/caregivers that are harvesting and consuming nutritious foods from their own home or community garden.
8	Number of existing delivery systems that expand and/or improve their offering of healthy foods.

**Outcome #1**

**1. Outcome Measures**

Number of children and youth that reported eating more healthy foods.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2013	1237

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Childhood obesity rates triplicated in the last decade in both genders (Pediatric Nutrition Surveillance System-PedNSS, 2008). In Puerto Rico, 30% of children and youth are considered obese; and more than 40% of children and youth are consuming ?junk foods?, sugared drinks and sweets (YBRFSS, 2009). Efforts in nutrition education programs were implemented. Professionals were educated in the areas of portion control, healthy snacks, reading food labels and healthy choices.

**What has been done**

Professionals visited schools, day care and impacted 2,066 children and youth through short courses on the topics previously mentioned. Meetings at the community centers, health fair, information booths, radio spots, parades and at schools emphasized healthy food choices and discourage the consumption of unhealthy foods. Hands-on projects on healthy snacks preparation, supermarket tours, My Plate and others were implemented.

**Results**

1,237 children and youth reported eating more of healthy foods. Among these, 82% reported an increased consumption of fresh fruits, 65% increased consumption of vegetables and 62% reported an increase in consumption of whole grain cereals after nutrition education and hands-on activities. Moreover, 63% of the children and youth reduced the consumption of sugary foods.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle



**Outcome #2**

**1. Outcome Measures**

Number of adults/caregivers that reported eating more of healthy foods.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	1569

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Results from the Health Information National Trends Survey, showed that the consumption of fruits and vegetable is low in Puerto Rico. Lack of knowledge and awareness on the health benefits on fruit and vegetable consumption respond to this issue.

**What has been done**

Hands-on on healthy snacks, recipe demonstrations, and nutrition education has been implemented

**Results**

The increase on the consumption of healthy foods is emerging. It was shown that 30% of the adults increased the consumption of healthy snacks, fruits and vegetables.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #3**

**1. Outcome Measures**

Number of children and youth that reported eating less of foods/food components which are commonly eaten in excess.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	998

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #4**

**1. Outcome Measures**

Number of children and youth that reported increasing their physical activity.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	1366

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

Sedentary lifestyles of children and youth in Puerto Rico, are impacting negatively physical activity in this population. A reduction in PE classes, increased TV viewing among others are potential risks factors for childhood obesity.

**What has been done**

Annual healthy eating and physical activity competitions with 4H groups have been implemented, as well as parades through the town, field days, among others. 2,066 children and youth completed short courses about the importance of nutrition and physical activity.

**Results**

Among children participating in short courses 1,366 (66%) reported an increase in daily physical activity. 53% reported engaging daily in 60 minutes or more of physical activity.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #5**

**1. Outcome Measures**

Number of children and youth that reported engaging daily in 60 minutes or more of physical activity.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	1103

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #6**

**1. Outcome Measures**

Number of adults/caregivers that understand the benefits of spending time together in physical activity.

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2013	760

**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

#### Outcome #7

##### 1. Outcome Measures

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

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2013	549

##### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

**What has been done**

**Results**

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
704	Nutrition and Hunger in the Population

#### Outcome #8

##### 1. Outcome Measures

Number of existing delivery systems that expand and/or improve their offering of healthy foods.

Not Reporting on this Outcome Measure

### **V(H). Planned Program (External Factors)**

#### **External factors which affected outcomes**

- Economy

#### **Brief Explanation**

A shortage in personnel due to economy changes affected the ability to outreach communities in which adult and childhood obesity is a concern. The Nutrition Specialist was hired in 2012 after being vacant for several years due to limited fund for hiring. Updated educational materials needed attention and this is in process.

### **V(I). Planned Program (Evaluation Studies)**

#### **Evaluation Results**

Due to the fact that two new Curriculum have been developed and implemented last year, evaluation process is ongoing and results will be available for the following report.

#### **Key Items of Evaluation**