

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

**Program # 1**

**1. Name of the Planned Program**

Global Food Security and Hunger - Milk and Meat Production 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
202	Plant Genetic Resources			5%	
205	Plant Management Systems			15%	
301	Reproductive Performance of Animals			10%	
302	Nutrient Utilization in Animals			15%	
303	Genetic Improvement of Animals			15%	
305	Animal Physiological Processes			5%	
306	Environmental Stress in Animals			5%	
308	Improved Animal Products (Before Harvest)			10%	
311	Animal Diseases			5%	
313	Internal Parasites in Animals			10%	
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: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	10.5	0.0
Actual Paid Professional	0.0	0.0	3.7	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
0	0	1443844	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	736188	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	53873	0

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

#### 1. Brief description of the Activity

The institutional work groups in forages and small ruminants (two groups that were practically inseparable) and in beef production and meat quality, showed a high level of productivity in conducting and publishing research and maintaining close contact with stakeholders, whereas the dairy cattle group gradually gained momentum, the swine group was less active and the poultry industry received very little attention. Researchers of these groups gave 20 presentations of research results at meetings of scientific societies in Puerto Rico and abroad. The list of recommended management practices (RMP) based on research results continued to expand, especially with regard to production and utilization of highly nutritious forages and improved quality of locally produced beef. Field day activity to demonstrate RMP was less than desirable due in part to termination of funding for the UCAR programs of the Commonwealth Government. However, local producers planted on their farms considerable areas of recommended forages. Economic studies on beef cattle operations in Puerto Rico were provided as requested by government officials and producers' associations. Three new proposals for research projects with dairy cattle were submitted dealing with: (1) artificial insemination technology, (2) genetic improvement of animals for thermal stress tolerance, and (3) control of subclinical mastitis.

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

(1) Commercial-scale producers of the following types of livestock and related products: bovine milk and replacement dairy cattle, beef cattle, sheep and goats, swine, rabbits, poultry for meat and eggs, and forages for sale.

(2) Specialists and County Agents of the Agricultural Extension Service of UPR.

(3) Professional personnel of the Puerto Rican Department of Agriculture and of the USDA.

(4) Policy makers in the Commonwealth and Federal Governments.

(5) Personnel of the Farm Credit Service and other financial institutions that make loans to livestock producers.

(6) Professionals engaged in private enterprises such as consulting services.

(7) Faculty members and university graduate and undergraduate students.

(8) High school students of vocational agriculture.

(9) Interested members from the general public.

(10) Foreign colleagues and visitors with related interests.

#### 3. How was eXtension used?

eXtension was not used in this program

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

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	0	14	0

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

**Output Target**

**Output #1**

**Output Measure**

- Number of meetings held with stakeholders to discuss the industry's situation and research priorities

Year	Actual
2012	7

**Output #2**

**Output Measure**

- Number of popular (non-refereed) publications based on research results.

Year	Actual
2012	1

**Output #3**

**Output Measure**

- Number of field days held in research facilities and/or private farms to demonstrate RMPs based on research results.

<b>Year</b>	<b>Actual</b>
2012	1

**Output #4**

**Output Measure**

- Number of publications in refereed scientific journals.

<b>Year</b>	<b>Actual</b>
2012	14

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

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

O. No.	OUTCOME NAME
1	Number of participants in field days willing to adopt the RMPs demonstrated.
2	On farm income from sale of livestock and related products, as percentage of base year 2010-2011.

## **Outcome #1**

### **1. Outcome Measures**

Number of participants in field days willing to adopt the RMPs demonstrated.

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

- 1862 Research

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

Change in Knowledge Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	12

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

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

Under the present difficult economic situation producers must increase their knowledge of and attitude toward adopting RMPs to improve the biological efficiency and profitability of their operations.

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

An educational effort has been carried out.

#### **Results**

25 participants gained knowledge about innovative RMP and 12 of them are candidates for early adoption on their farms.

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

<b>KA Code</b>	<b>Knowledge Area</b>
202	Plant Genetic Resources
205	Plant Management Systems
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
313	Internal Parasites in Animals
601	Economics of Agricultural Production and Farm Management

## **Outcome #2**

### **1. Outcome Measures**

On farm income from sale of livestock and related products, as percentage of base year 2010-2011.

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

- 1862 Research

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

Change in Condition Outcome Measure

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

<b>Year</b>	<b>Actual</b>
2012	0

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

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

As for dairy production, the most important farm enterprise in Puerto Rico, the long-used escape valve of paying higher per unit prices to milk producers and passing the increased cost to consumers has nearly reached its possible limit, thus the challenge facing the dairy industry is obvious. Other livestock industries face the challenge posed by lower priced imports.

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

Research and extension efforts on BMP for dairy and livestock producers continue, emphasizing on strategies that could reduce production costs and differentiate our product from the imported one on the basis of quality.

#### **Results**

Data availability from the Statistics Section of the Commonwealth Department of Agriculture is behind schedule. The latest two fiscal years for which final data on items included under this Program Area can be compared are 2010 and 2011. The overall year to year increase in monetary terms was equivalent to a relative increase of 10.4%. Almost all of this increase is represented by higher gross returns from the sale of milk and broilers, whereas the increases and decreases registered for other types of meat, eggs, replacement dairy heifers, change in value of animal inventories and commercial forages, essentially cancel one another. In the case of dairy, all of the increased income from milk resulted from a higher price per unit sold by producers, whereas the volume of product decreased.

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

<b>KA Code</b>	<b>Knowledge Area</b>
301	Reproductive Performance of Animals

302	Nutrient Utilization in Animals
303	Genetic Improvement of Animals
306	Environmental Stress in Animals
601	Economics of Agricultural Production and Farm Management

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

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

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Other (Loss of agricultural lands, Food)

##### **Brief Explanation**

Natural disasters did not occur in 2012, but the economic climate with which the local livestock industries had to deal continued to worsen during the year.

Appropriations- although the budget situation of the institution was very tight in 2012, there were improvements to certain physical facilities, notably those of the Lajas dairy; also several recent PHD recipients were incorporated into the faculty of the Animal Industry Department.

Other- The loss of a considerable part of the land comprising the Gurabo Substation, including pasture areas, to non-agricultural uses, was narrowly avoided. New research efforts were, nevertheless, halted until the conflict was resolved. Political pressure was also evident regarding efforts to intervene in lands belonging to Finca La Montaña in ways incompatible with the present pattern of use. As for the private lands, Puerto Rico is badly in need of an island-wide Land Use Plan designed to save the remaining areas suitable for agriculture.

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

##### **Evaluation Results**

A formal program evaluation is being scheduled for the Fall of 2013. The results available from the evaluation of activities performed last year show, as portrayed in our outcomes section, that 48% of participants in these trainings were willing to adopt the recommended management practices in their farms.

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