

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
101	Appraisal of Soil Resources	5%			
102	Soil, Plant, Water, Nutrient Relationships	15%			
104	Protect Soil from Harmful Effects of Natural Elements	5%			
111	Conservation and Efficient Use of Water	5%			
112	Watershed Protection and Management	5%			
121	Management of Range Resources	20%			
122	Management and Control of Forest and Range Fires	5%			
123	Management and Sustainability of Forest Resources	10%			
124	Urban Forestry	20%			
133	Pollution Prevention and Mitigation	5%			
141	Air Resource Protection and Management	5%			
	Total	100%			

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	9.0	0.0	0.0	0.0
Actual	11.0	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
462765	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
231382	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

- Collaborate with government agencies (DNRA, USDA-NRCS and others).
- Collaborate with our partners in the University of Puerto Rico and other educational institutions.
- Conduct workshops, short courses and trainings on practices, laws, and regulations related to range management, urban forestry, soil, water, and air.
 - On-site farm visits and field trips to demonstration projects.
 - Offer advice when clientele visit the office.
 - Participate in radio programs.

2. Brief description of the target audience

County agents, home economists, government personnel, community residents, youth 13-18 years old, farmers, homeowners.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	4000	3000	0	0
Actual	7132	1112	0	0

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

Patent Applications Submitted

Year: 2010
 Plan: 0
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Plan	2	0	
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of farmers trained in range management.

Year	Target	Actual
2010	250	291

Output #2

Output Measure

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

Year	Target	Actual
2010	300	195

Output #3

Output Measure

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

Year	Target	Actual
2010	100	72

Output #4

Output Measure

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

Year	Target	Actual
2010	100	223

Output #5

Output Measure

- Number of agency collaborations established.

Year	Target	Actual
2010	75	99

Output #6

Output Measure

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

Year	Target	Actual
2010	225	1748

Output #7

Output Measure

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

Year	Target	Actual
2010	20	23

Output #8

Output Measure

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

Year	Target	Actual
2010	250	30

Output #9

Output Measure

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

Year	Target	Actual
2010	500	2601

Output #10

Output Measure

- Number of farmers trained on soil fertility.

Year	Target	Actual
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2010 350 620

Output #11

Output Measure

- Number of farmers trained on soil conservation practices

Year	Target	Actual
2010	250	183

Output #12

Output Measure

- Number of people trained on watershed protection.

Year	Target	Actual
2010	200	89

Output #13

Output Measure

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

Year	Target	Actual
2010	350	47

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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

Outcome #1

1. Outcome Measures

Number of farmers that improved their pastures.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	55

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Range farmers and dairy farmers concerned with the high cost of concentrated feeds explored other alternative to reduce their feed expenses. The Puerto Rico Agricultural Extension Services (PRAES) and the Natural Resources Conservation Service (NRCS-USDA) joined efforts to help farmers to improve their pastures adopting best management practices.

What has been done

PRAES developed several trainings to inform, promote and encourage the adoption of management practices to improve pastures and reduce costs. Rotation practices, renovation of forage species and control of weeds were some of the practices promoted among farmers.

Results

A total of 18.9% of the farmers trained improved their pastures. Better selection of forage species helped to improve livestock performance due to the increased forage protein quality and yields.

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources

Outcome #2

1. Outcome Measures

Number of persons that adopted one or more practices on natural resources and forest conservation.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	150	132

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

PRAES intends to train farmers and community members on appropriate practices on natural resources and forest conservation to protect and conserve our natural resources. Puerto Rico has a high rate of erosion and we are losing available land suitable for agriculture and forest lands affecting our watersheds, rivers, and coral reefs.

What has been done

PRAES, NRCS-USDA and several government state agencies (Departments of Natural Resources and Environment, Aqueduct and Sewer Agency, others), joined efforts to train community members, farmers and students on the appropriate management to conserve our natural resources (soil, water, and air) and forests as a way to control soil erosion and deforestation and preserve our lands

Results

A total of 7.5% of the people trained were impacted and adopted one or more practices on natural resources and forest conservation. Community groups, students, and farmers around the island accepted the challenge and adopted practices on their farms, communities, and schools. Watershed protection, recycling of paper and waste material, and preparing compost were some of the practices adopted.

4. Associated Knowledge Areas

KA Code	Knowledge Area
123	Management and Sustainability of Forest Resources
124	Urban Forestry

Outcome #3

1. Outcome Measures

Number of reforestation projects established.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	20	41

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Global warming is a threat to our environment. IN Puerto Rico watersheds and forests are being deforested sometimes for agricultural purposes, others for city or home development, increasing the sedimentation of rivers and streams and the potential for floods. Communities and citizens affected by changes in weather and climate patterns developed reforestation projects for pollution and soil erosion control and sedimentation of rivers and streams.

What has been done

PRAES joined efforts with government agencies (Department of Natural Resources and Environment, Permits and Regulations Administration, "Administración de Reglamentos y Permisos- ARPE", and Natural Resources Conservation Service), non-government agencies, community and schools to promote and develop reforestation projects to enhance the natural environment around communities. These projects help and contribute to minimize the impact of soil and water erosion in our lands. Tree nurseries were established by the DNRA to produce tree seedlings of native trees for reforestation projects that help to create new environmental leaders in our communities.

Results

Forty-one (41) reforestation projects were established as a result of the involvement of community groups and citizens, and schools throughout the island. These projects will help to reduce soil erosion and sedimentation of our watershed and rivers. They will also help to conserve endangered native trees and habitats for wildlife species and enhance the community.

4. Associated Knowledge Areas

KA Code	Knowledge Area
124	Urban Forestry

Outcome #4

1. Outcome Measures

Numbers of persons that adopted one or more practices on fire prevention in forests and rangelands.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	30	31

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
122	Management and Control of Forest and Range Fires

Outcome #5

1. Outcome Measures

Number of farmers that adopted the recommended range management practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	170	55

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources

Outcome #6

1. Outcome Measures

Number of acres in improved pastures.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	500	92

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
121	Management of Range Resources
123	Management and Sustainability of Forest Resources

Outcome #7

1. Outcome Measures

Number of persons that adopted practices for pollution prevention and mitigation of natural resources.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	500	112

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
133	Pollution Prevention and Mitigation

Outcome #8

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	125	8

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
141	Air Resource Protection and Management

Outcome #9

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	250	144

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

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

Outcome #10

1. Outcome Measures

Number of farmers that adopted the fertilization practices.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
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2010 300 1512

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships

Outcome #11

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	200	49

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources

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

Outcome #12

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	80	154

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

Outcome #13

1. Outcome Measures

Number of persons that adopted practices to improve water resources.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	350	80

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management

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
- Other (Avail. econo. incent., change ag)

Brief Explanation

Although there was an increase in some areas, in others the goals were not met due to various factors. The reduction in incentives to farmers due to a reduction in resources in government agencies and an increase in farm costs due to increased prices in feed and transportation made farmers more cautious in their use of their budget. Also the unpreceded amount of rain during 2010, which was the highest in recorded history, affected many farm enterprises.

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

1. Evaluation Studies Planned

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

Evaluation Results

Key Items of Evaluation