

2007 Prairie View A&M University Research Annual Report

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I. Report Overview

1. Executive Summary

The Cooperative Agricultural Research Center (CARC) is the organizational unit responsible for coordinating agricultural research within the College of Agriculture and Human Sciences at Prairie View A&M University. The CARC originally established as an agricultural experimental substation in 1947, coordinates research activities in three major areas: Animal Systems, Food Systems, and Plant and environmental Systems. The Animal Systems research focuses on improving the scientific understanding of the physiological mechanisms affecting reproduction, growth and performance of grazing ruminants (cattle and goats). The reproductive biology group are studying the molecular mechanisms responsible for pregnancy recognition and formation of the placenta in the goat. Specific carbohydrate antigens, especially H-type 1, are strongly expressed by the cells lining the reproductive tract during pregnancy recognition. Putative counter-receptors for the H-type 1 antigen have been identified on fetal membranes at equivalent stages of pregnancy. Identification and regulation of the proteins carrying the H-type 1 antigen are currently under investigation. Knowledge of factors that regulate uterine expression of the H-type1 antigen may provide novel methods to modulate the window of uterine receptivity for embryo attachment and control fertility. The genetics characterization, conservation and preservation group are working on ways to identify character traits that possess corresponding genetic resistance to, or tolerance of, parasite infection. Additional work include optimizing production systems, live breeding, and value-added products development. Currently a research program is being maintained entitled "Establishing a Biodiversity and Genetic Resource Conservation Center for Goats at Prairie View A&M University." The long term goals are: To establish a germplasm conservation center for goats, characterize goat breeds, improve meat/milk production in goats through modern molecular technologies and study genetic drift in small populations maintained in situ. The Food Systems working group focus efforts on issues of regional and national importance of enhancing nutrition, food safety/quality and the related impacts on the quality of life. Critical issues facing the underserved population locally, nationally and globally involving the incidences of nutritional related illnesses and diseases, such as diabetes and obesity, and the increase in foodborne illnesses. The goals of this group are to: 1) increase the body of knowledge in the understanding of nutrients and mechanisms implicated in illnesses and diseases and; 2) to increase the body of knowledge in the areas of quality and safety of meat, milk, and value-added products. Currently, work involves enhancing the quality of food and food products, examine strategies for mitigating the transmission of natural foodborne pathogens, examine methods for the reduction of natural and introduced toxicants in foods and feed, examine nutrient quality enhancement of food and food products, examine mechanisms involved in nutrient utilization and diseases, evaluate strategies for minimizing the transfer of microbial pathogens during food handling, evaluate strategies for translating nutrition knowledge into better food selection. One of our long-term goals in food safety is to reduce the incidences of foodborne illnesses by reducing contaminated animal carcasses and/or value-added products. Our scientists have used poultry, goats, swine, and to a limited extent, beef cattle to identify practical ways of decontaminating animal carcasses. Results of our work with poultry have shown that there are simple techniques (patent pending) that handlers can use to significantly (more than 70 percent) reduce the bacterial count on poultry carcasses. Goat milk and products made from goat milk have unique aroma and flavors that are preferred by many gourmet food consumers. Flavor is a major attribute that influences the selection and consumption of dairy foods. Formation of flavor is very complex and results from the interaction of several compounds originating from components of dairy products. The dynamic biochemical and chemical reactions in some dairy products, especially aged goat milk cheeses affect flavor formation during processing and aging. Maturation and aging of cheese are a time consuming and expensive process requiring controlled temperature and humidity. Finding practical ways to reduce the length of refrigerated storage and ripening of cheeses is economically important and will save the cow and goat dairy industry a considerable amount of money and, in some cases, will determine the economic failure or success of a dairy food processing operation. The formation of flavoring compounds in semi-hard and hard type goat milk cheeses can be enhanced by modified processing techniques. The Plant and Environmental Systems group works on a number of projects that are very important and vital portion to the regional environment, the Texas Gulf Coast Prairie Wetland Ecosystems. Project activities include the following three main components, with the associated subtopics: 1) Soil and Water Monitoring - a) Soil descriptions; b) Redoximorphic Features; c) Seasonally Wet soils; d) Wetland Soils; e) Wetland Hydrology; f) Wetland Delineation; g) Water Table Monitoring; g) Water Storage Monitoring; and i) Rainfall Variability - microsite level; 2) Biogeochemical Processes - a) Petroleum Remediation; b) Toxic Chemical Remediation, c) Microbial Control; d) Fe and Mn Dynamics; e) Plant-Soil-Microbial Interactions; and f) Biodegradable Polymer Systems; and 3) Alternative Cropping Systems and Biomass Production - a) Bioenergy Crops; b) Environmental Biotechnology; c) Cellulose and Fatty Acid Enhancement; d) Biomass Genomics; e) Wetland Plants; f) Environmental Biochemistry of Prairie Grasses; and g) Plant Growth-Soil Microbial Interactions. The current research is focused on developing an effective natural compound to control methods for reducing and/or eliminating toxin-producing molds including *Aspergillus flavus* and *Fusarium* spp, as well as controlling pathogenic bacteria found in food, such as *Staphylococcus* sp, *Enterobacter aerogenes*, *Salmonella* sp. *E. coli*, and others. The research approach is at the molecular and cellular levels. This approach involves elucidation of the mode of action of the natural compound, as well as the genetic expression of the targeted microorganisms in relation to their resistance to the

controlling compound. This technology is in process for licensing, patenting and for EPA approval.

Total Actual Amount of professional FTEs/SYs for this State

Year:2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	52.0
Actual	0.0	0.0	0.0	47.2

II. Merit Review Process

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

- Internal University Panel
- Combined External and Internal University Panel
- Other (Stakeholder Evaluations)

2. Brief Explanation

Over the past year the Center engaged a number of Merit/Peer Review processes. The Center, in conjunction with an integrated team, spearheaded by the Dean of the College, completed an extensive Excellence Planning Process. This Plan was submitted to University Administration on January 16, 2007. Additional steps used to ensure merit process, the Center engaged the Office of Sponsored (OSP) in fiscal review/oversight and for research projects, the Center engaged the services of the Office of the Vice-President for Research and Development (VPRD). The VPRD re-established the University Committee on Research which provided valuable insights as well as provided external reviews for project proposals.

III. Stakeholder Input

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

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals

Brief Explanation

Stakeholders were contacted directly and indirectly through a variety of means to invite their participation in a number of college activities. The college, which consist of the Academic Department, the Extension Program, and the Research Center, serve as the tripart type entity for the agricultural program at the University. Many of the activities of the College were integrated in nature which leveraged the potential contacts with Stakeholders.

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
- Use Internal Focus Groups
- Open Listening Sessions
- Use Surveys
- Other (commodity organizations)

Brief Explanation

The College established an external advisory committee in early 2007 to provide input and evaluation of programs targeted for excellence. The group was given the added charge of evaluating ongoing programs in the College including academics, research, and extension. Additionally, the College engaged in a number of activities which include participation in listening sessions, sponsored by the various interest groups which also included the Texas AgriLife Extension.

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 groups
- Survey of traditional Stakeholder groups
- Meeting with the general public (open meeting advertised to all)
- Other (Program Evaluation)

Brief Explanation

Comments and feedback from various program activities were collected, synthesized and incorporated in program planning. Additionally, evaluations were conducted at all program activities where external audiences were included. Additional input was received through various review of program provided by the USDA, other interest/commodity groups. We also engaged in a number of discussion activities with stakeholders and interest groups such as, Goat Producers, limited resource farmers as well as non-traditional audiences.

3. A statement of how the input was considered

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

Brief Explanation

Input gathered from stakeholders was used when developing new project proposals and/or redirecting ongoing program of works. Additionally, project proposals were externally reviewed in order to ensure relevancy in addressing stakeholder needs.

Brief Explanation of what you learned from your Stakeholders

One of the lessons learned in the stakeholder process is that we must consider the perception of the stakeholders regardless of the reality and the practicality of their expectations. However, this process is useful in maintaining relevancy of the program as well as keeping the research program grounded in reality.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	0	3717038

2. Totaled Actual dollars from Planned Programs Inputs				
Extension			Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	0	0	0	3322977
Actual Matching	0	0	0	1136648
Actual All Other	0	0	0	0
Total Actual Expended	0	0	0	4459625

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years				
Carryover	0	0	0	0

V. Planned Program Table of Content

S. NO.	PROGRAM NAME
1	Food Systems
2	Animal Systems
3	Plant and Environmental Systems

Program #1

V(A). Planned Program (Summary)

1. Name of the Planned Program

Food Systems

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies				10%
502	New and Improved Food Products				10%
503	Quality Maintenance in Storing and Marketing Food Products				10%
701	Nutrient Composition of Food				10%
702	Requirements and Function of Nutrients and Other Food Components				10%
703	Nutrition Education and Behavior				20%
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources				20%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins				10%
Total					100%

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	15.6
Actual	0.0	0.0	0.0	11.3

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	0	991569
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	307746
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 research experiments that will:

- develop methods for enhancing the quality of food and food products.
- examine strategies for mitigating the transmission of natural food borne pathogens.
- examine methods for the reduction of natural and introduced toxicants (eg. antibiotics in milk and Salmonella) in foods and feed.
- examine nutrient quality enhancement of food and food products.
- examine mechanisms involved in nutrient utilization and diseases.
- evaluate strategies for minimizing the transfer of microbial pathogens during food handling.
- evaluate strategies for translating nutrition knowledge into better food selection.

2. Brief description of the target audience

The primarily targeted audience are the underserved population living in the surrounding counties and the Northwest Houston Corridor. This population is dominated by Hispanics and African-Americans. Also, this area has been designated by the State of Texas as Prairie View A&M University's service area.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	250	750	200	300
2007	200	500	200	300

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	2

Patents listed

Mora-Gutierrez, Adela and Gurin, Michael H. 2007. Nanoemulsion compositions and methods of use thereof. Patent Application Publication US 2007/0085058.

Mora-Gutierrez, Adela and Gurin, Michael H. 2007. Bioactive complex compositions and methods of use thereof. Patent Application Publication. US 2007/0085059

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	8	8

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- -peer review publications. -external funding. -workshops. -presentations. -graduate and undergraduate matriculation.

Year	Target	Actual
2007	7	5

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O No.	OUTCOME NAME
1	-Commercialization of methods/technology for improving the quality, safety and use of food and food products for the reduction of obesity, food borne illnesses and other nutritionally related diseases. -Nutrition/exercise intervention programs leading to a reduction in obesity. -Increase in the dissemination and use of research based information into newsletters and incorporation into extension and other programs leading to a reduction in nutrition related and food borne diseases and illnesses.

Outcome #1**1. Outcome Measures**

-Commercialization of methods/technology for improving the quality, safety and use of food and food products for the reduction of obesity, food borne illnesses and other nutritionally related diseases. -Nutrition/exercise intervention programs leading to a reduction in obesity. -Increase in the dissemination and use of research based information into newsletters and incorporation into extension and other programs leading to a reduction in nutrition related and food borne diseases and illnesses.

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

The consuming public.

What has been done

Developed information briefs.

Results

Public awareness.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
502	New and Improved Food Products
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc
501	New and Improved Food Processing Technologies
503	Quality Maintenance in Storing and Marketing Food Products
701	Nutrient Composition of Food
703	Nutrition Education and Behavior

V(H). Planned Program (External Factors)**External factors which affected outcomes**

- Appropriations changes
- Competing Public priorities
- Populations changes (immigration,new cultural groupings,etc.)
- Other (Program Direction)

Brief Explanation

State funding to achieve matching requirement was not met.Competing priorities for use of funds.Refocusing of research priorities to reflect changing needs of stakeholders.

V(I). Planned Program (Evaluation Studies and Data Collection)**1. Evaluation Studies Planned**

- During (during program)
- Other (Annual Evaluation)

Evaluation Results

Evaluation result indicate that the program is addressing relevant issues.However, actual accomplishments have not reached the desired level as predicted due to mitigating circumstances and human capital constraints.

Key Items of Evaluation

The food systems focus group are currently working on a number of relevant food safety/quality issues.However, resource constraints, primarily human capital, have limited the outcome at this point.Projections, however, for the future include the addition of new staff that will enhance the human capital capacity of the group.This will increase the ability of the group to acclerate the process of achieving results desired.

Program #2

V(A). Planned Program (Summary)

1. Name of the Planned Program

Animal Systems

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals				10%
302	Nutrient Utilization in Animals				10%
303	Genetic Improvement of Animals				10%
304	Animal Genome				20%
305	Animal Physiological Processes				10%
307	Animal Management Systems				20%
308	Improved Animal Products (Before Harvest)				10%
313	Internal Parasites in Animals				10%
	Total				100%

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	20.8
Actual	0.0	0.0	0.0	20.5

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	0	542739
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	692334
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

Applied and basic scientific research goals are as follows:

1. Determine the efficiency of farm animal production systems through a combination of best management practices:
 - a. Establish usefulness of various forage based production systems and establish farm profit margins for the Texas Gulf Coast region.
 - . Increase livestock productivity on small acreage using forage based nutrient systems for livestock production, including improved Bermuda-grasses for hay and pastures, and co-grazing studies.
 2. Develop methods that will improve reproductive efficiency of farm animals and improved conditions for growth and well-being of animals:
 - a. Define endocrine and paracrine mechanisms which regulate uterine receptivity and support conceptus growth, endometrial attachment and placentation.
 - . Identify the proteins carrying the carbohydrate recognition molecules on the endometrium that promote stable cell-cell interactions and facilitate placentation.
 - c. Investigate factors involved in sperm attachment within the female reproductive tract and their relationship to fertility levels.
 - d. Utilize functional genomic approaches to understand the physiological mechanisms that influence reproduction, growth and efficiency of food producing animals.
 - e. Identify molecular markers for desirable traits, including disease and stress resistance.

2. Brief description of the target audience

While the University's service area extend throughout Texas and the world, the University's target service area includes the Texas Gulf Coast Region. This includes the surrounding counties and includes the rapidly growing residential and commercial area known as the Northwest Houston Corridor as noted in the original Texas Plan. Therefore, problems associated with agricultural production systems, including those that exist at urban-agricultural interfaces and impact stakeholders will be addressed.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	500	250	35	300
2007	300	250	100	200

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

Patent Applications Submitted

Year	Target
Plan:	0
2007 :	0

Patents listed

None.

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	10	10

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Increase in peer reviewed publications. Increase in competitive grants received by Faculty and Staff in the Animal Systems Group. Increase in graduate student enrollment and matriculation in the Animal Science Program. We anticipate a 5% increase over the previous 5 year base line in each of these categories.

Year	Target	Actual
2007	5	3

V(G). State Defined Outcomes**V. State Defined Outcomes Table of Content**

O No.	OUTCOME NAME
1	Improved reproduction efficiency and improved conditions for optimal growth and well-being of farm animals. Availability of resources (demonstration/test plots, hay and pastures, co-grazing site, etc.) for use by research scientists, graduate students and Extension personnel for research and teaching purposes. Availability of and demonstrations using latest technology for research, demonstrations and teaching purposes for herd/farm record systems, animal identification, etc. applicable to small landowners and other producers. A greater public understanding of the principles of animal behavior, animal responses to their environment, and the biology of reproduction and growth. Increased farm income and profitability by understanding production economics, profit margins and clarifying marketing channels and timing .profitability. A more competitive livestock industry in Texas.

Outcome #1

1. Outcome Measures

Improved reproduction efficiency and improved conditions for optimal growth and well-being of farm animals. Availability of resources (demonstration/test plots, hay and pastures, co-grazing site, etc.) for use by research scientists, graduate students and Extension personnel for research and teaching purposes. Availability of and demonstrations using latest technology for research, demonstrations and teaching purposes for herd/farm record systems, animal identification, etc. applicable to small landowners and other producers. A greater public understanding of the principles of animal behavior, animal responses to their environment, and the biology of reproduction and growth. Increased farm income and profitability by understanding production economics, profit margins and clarifying marketing channels and timing .profitability. A more competitive livestock industry in Texas.

2. Associated Institution Types

- 1890 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The producers of farm animals.

What has been done

Genetic enhancement and parasite control.

Results

Genetic improvement and reduction in the incidencies of parasite outbreaks.

4. Associated Knowledge Areas

KA Code	Knowledge Area
303	Genetic Improvement of Animals
301	Reproductive Performance of Animals
313	Internal Parasites in Animals
308	Improved Animal Products (Before Harvest)
304	Animal Genome
302	Nutrient Utilization in Animals
307	Animal Management Systems
305	Animal Physiological Processes

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Changes in competing priorities combined with decline in human capital. Additional constraints include physical facilities and laboratory equipment.

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

1. Evaluation Studies Planned

- During (during program)
- Other (Program Evaluation)

Evaluation Results

Activities engage the continuous evaluation and feedback from participants and stakeholders. Additional input is received through extension personnel who maintain ongoing contact throughout the state with producers and/or interest groups.

Key Items of Evaluation

The animal system focus group are currently working on a number of relevant animal reproductive issues. However, resource constraints, primarily human capital, have limited the outcome at this point. Projections, however, for the future include the addition of new staff that will enhance the human capital capacity of the group. This will increase the ability of the group to accelerate the process of achieving results desired.

Program #3

V(A). Planned Program (Summary)

1. Name of the Planned Program

Plant and Environmental Systems

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				10%
103	Management of Saline and Sodic Soils and Salinity				10%
104	Protect Soil from Harmful Effects of Natural Elements				10%
112	Watershed Protection and Management				10%
131	Alternative Uses of Land				10%
132	Weather and Climate				10%
133	Pollution Prevention and Mitigation				10%
201	Plant Genome, Genetics, and Genetic Mechanisms				10%
202	Plant Genetic Resources				10%
206	Basic Plant Biology				10%
	Total				100%

V(C). Planned Program (Inputs)

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

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.0	15.6
Actual	0.0	0.0	0.0	15.4

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	0	1788669
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	0	136568
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

1. Newsletters.
2. Publications (journals, articles).
3. Abstracts.
4. Presentations (scientific conferences, workshops, seminars).
5. digital media (video, MP3 JPEG, GIFF) of project work.
6. Audio (recordings, radio, TV excerpts).

2. Brief description of the target audience

One-on-one interaction in field and lab project areas will highlight the research efforts. Extension is the end product of the integrated work within the research, teaching, and extension model.

V(E). Planned Program (Outputs)

1. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	15	200	40	200
2007	50	200	75	100

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

Patent Applications Submitted

Year	Target
Plan:	1
2007 :	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	8	8

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Increase peer-review publications, presentations, abstracts, and competitive grants. Increase graduate student enrollment and matriculation in the program. We anticipate a 5% increase over the previous 5 year base line in each of these categories.

Year	Target	Actual
2007	5	5

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	-Research results highly valued by stakeholders -Increased recognition of the program -Increased interest in the program by students wishing to matriculate in the program -Enhanced attraction of external funding

Outcome #1**1. Outcome Measures**

-Research results highly valued by stakeholders -Increased recognition of the program -Increased interest in the program by students wishing to matriculate in the program -Enhanced attraction of external funding

2. Associated Institution Types

•1890 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2007	0	0

3c. Qualitative Outcome or Impact Statement**Issue (Who cares and Why)**

Environmental interest groups including the USDA, the Texas Department of Agriculture and Texas Parks & Wildlife.

What has been done

Wetlands delinations, new techniques of biocontrol and new systems of bioremediations.

Results

Better understanding of ecosystem interactions.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
133	Pollution Prevention and Mitigation
206	Basic Plant Biology
131	Alternative Uses of Land
202	Plant Genetic Resources
132	Weather and Climate
104	Protect Soil from Harmful Effects of Natural Elements
201	Plant Genome, Genetics, and Genetic Mechanisms
112	Watershed Protection and Management
103	Management of Saline and Sodic Soils and Salinity

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

Changing climatic factors combined with changing demographics leading to increasing competing uses of the land. The emerging rural urban interface increases the need for relevant outcomes. However, competing needs for internal resources hampers the ability to address all competing needs in a timely manner. More effective planning and enhanced resource capacity will ensure better results in future activities.

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

1. Evaluation Studies Planned

- During (during program)

Evaluation Results

Evaluation results indicate program relevancy.

Key Items of Evaluation

The plant and environmental systems focus group are currently working on a number of relevant plant and environmental quality issues. However, resource constraints, primarily human capital, have limited the outcome at this point. Projections, however, for the future include the addition of new staff that will enhance the human capital capacity of the group. This will increase the ability of the group to accelerate the process of achieving results desired.