

2007 Prairie View A&M University Research Plan of Work

Brief Summary about Plan of Work

The Cooperative Agricultural Research Center (CARC) is the organizational unit within the college of Agriculture and Human Sciences at Prairie View A&M University, originally established as an agricultural experimental substation in 1947, with assigned administrative and managerial responsibilities research in the food and agricultural sciences. The Center serves to coordinate research activities in three major areas: Animal Systems, Food Systems, and Plant and Environmental Systems. The Center is committed to the land-grant mission, the mission of the University, the Texas Agricultural Experiment Station and the USDA. This Plan of Work supports the broad goals of USDA, and the CSREES in particular, of ensuring the competitiveness of the U.S. Agricultural System.

Mission:

The mission of the Cooperative Agricultural Research Center is:

To conduct relevant, quality, focused, basic and applied research in the areas of agriculture, life and human sciences.

The vision of the Cooperative Agricultural Research Center is to be a premier research agency providing scientific solutions to problems facing our dynamic society.

The philosophy: Together We Make a Difference

BACKGROUND

The AREERA of 1998 amended the Hatch Act of 1887, the Smith-Lever Act of 1914, and sections 1444 and 1445 of the National Agricultural Research, Extension, and Teaching Policy Act of 1977 (NARETPA) to require plans of work to be received and approved by CSREES prior to the distribution of funding authorized under these Acts. The collection of information includes 3 parts: the submission of a 5-year plan of work every five years; the submission of an annual update of the 5-year plan of work, if applicable; and, the submission of an annual report of accomplishments and results.

Estimated number of professional FTEs/SYs to be budgeted for this plan.

Year	Extension		Research	
	1862	1890	1862	1890
2007	0.0	0.0	0.0	52.0
2008	0.0	0.0	0.0	54.0
2009	0.0	0.0	0.0	56.0
2010	0.0	0.0	0.0	60.0
2011	0.0	0.0	0.0	60.5

Merit Review Process

The merit review process that will be employed during the 5-Year Plan of Work cycle

- Internal University Panel
- Combined External and Internal University Panel
- Combined External and Internal University External Non-University Panel

Brief explanation

1) Merit Review

All funded projects, either Evans-Allen, Experiment Station (Hatch), or otherwise, undergo a merit review process. Each scientist (or faculty) when submitting a proposal for funding support, must submit the name of at least two qualified individuals to provide technical review of the project. Additionally, the Research Director selects individuals to serve as members of an internal review panel in consultation with the University's Vice President for Research and Development. At minimum, three individuals review and evaluate each proposed project prior to approval for external submittal and /or internal fund allocation.

2) Scientific Peer Review

All research proposals submitted for funding (including CRIS projects) must show evidence of one or more external reviews. Written comments should be included with final proposals for campus routing. Routing proposals through quality control check points (Research Director → Dean of the College → Vice President for Research) are designed to ensure that proposal meet RFP guidelines as well as meet scientific merit qualifications. All proposals are quality checked by our on campus Office of Sponsored Programs

Evaluation of Multis & Joint Activities

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

The designated research programmatic areas focus research efforts on targeted research issues that have been identified through strategic planning, including the stakeholder input process. Project activities will engage a continues review/feedback process of evaluation with periodic updates.

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

The overall goal of the Center is to support the mission of the University which is to serve a diverse ethnic and socioeconomic population, with special emphasis on the underserved. While the University's service area extends throughout Texas, the nation and the world, its primary target area is the Texas Gulf Coast Region, with primary emphasis on the Houston Northwest Corridor. The area is heavily populated by individuals of diverse ethnic and socioeconomic backgrounds.

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

The three (3) focused programs - Animal Systems, Food Systems and Plant and Environmental Systems - will address issues that are expected to have measurable outcomes and impacts. Each program, with subsequent projects, will be hypothesis-driven which means that the results will be measurable.

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

Planned programs will result in improved effectiveness for several reasons: one - all projects will be developed by teams with individuals having diverse backgrounds and interests. Secondly, the process of continuous feedback/evaluation will ensure effectiveness, efficiency and relevancy of the project.

Stakeholder Input

1. Actions taken to seek stakeholder input that encourages their participation (Check all that apply)

- 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
- Other

Brief explanation.

The Cooperative Agricultural Research Center uses several input processes to obtain stakeholder input for purposes of designing research. This will include; external advisory committees, joint field days, targeted workshops, seminars, short courses, and internal committees.

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

1. Method to identify individuals and groups

- Use Advisory Committees
- Use Internal Focus Groups
- Open Listening Sessions

- Use Surveys
- Other

Brief explanation.

The above listed organizations provide invaluable input into the stakeholder process.

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

1. 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)

Brief explanation

Will use a variety of collection methods to identify individuals or groups of stakeholders. This will include methods as checked in the categories above as well as other methods that may occur.

3. A statement of how the input will be considered

- In the Budget Process

Brief explanation.

Information collected through the stakeholder process will be entered into a database and will be reviewed on a continuous basis by discussion groups and/or scientists in developing project activities.

1. Name of the Planned Program

Food Systems

2. Program knowledge areas

- 702 Requirements and Function of Nutrients and Other Food Components 10 %
- 503 Quality Maintenance in Storing and Marketing Food Products 10 %
- 703 Nutrition Education and Behavior 20 %
- 701 Nutrient Composition of Food 10 %
- 502 New and Improved Food Products 10 %
- 712 Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occuring Toxi 10 %
- 711 Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sourc 20 %
- 501 New and Improved Food Processing Technologies 10 %

3. Program existence

- Mature (More than five years)

4. Program duration

- Long-Term (More than five years)

5. Brief summary about Planned Program

The Food System Program (FSP) supports the land grant-mission and goals of USDA through addressing 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 are the incidences of nutritional related illnesses and diseases, such as diabetes and obesity, and the increase in foodborne illnesses.

The goals of the FSP are:

1. To increase the body of knowledge in the understanding of nutrients and mechanisms implicated in illnesses and diseases.
2. To increase the body of knowledge in the area of quality and safety of meat, milk, and value-added products.

To accomplish the goals research experiments that will be conducted to 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 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.

The results of these experiments will be published in peer-review journals and disseminated through workshops, conferences, newsletters and bulletins, and annual reports.

6. Situation and priorities

The Food System Program (FSP) supports the land grant-mission and goals of USDA through addressing 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 are the incidences of nutritional related illnesses and diseases, such as diabetes and obesity, and the increase in foodborne illnesses.

These issues have been defined with input from discussion groups at the University including researchers, extension program specialist, staff, students and from reviews of current and related literature, including strategic plans of USDA agencies (eg. ARS, CSREES) the National Institute of Health, the Centers for Disease Control (CDC) and the Texas Department of Health and Human Services. Our Cooperative Extension Program has regular future forum which helps in determining issues related to our clientele. The most recent data presented by CDC indicates that 76 million cases of food borne illnesses occur each year in the United States with exhibited mild symptoms. However, some 325,000 foodborne illness cases require hospitalization and another 5,000 foodborne illnesses result in deaths. The outbreaks of food borne illnesses varies in method of spreading but a significant number of incidents are widespread affecting individuals in various places with the onset of symptoms occurring over a several week time span. Based upon CDC report and unpublished data here at the University, in addition to technological advances in detection and control of pathogens, education of food handlers and the utilization of food safety practices may be the most effective manner to reduce the risk of increasing the pathogen population at and after purchase times and prior to, during and after preparation of foods. Furthermore, the prevalence rates (> 20%) of obesity is high in over half of the US.

Although obesity affects the population at large, the populations serviced by our institution is disproportionately impacted. The economical viability, productivity and well being of the society, the 1890 institutions and other MSIs populations are at risk with

the projected numbers of individuals that will be impacted by obesity and associated chronic disease in the future. Projects within the FSP will address the issues of nutritional related illnesses and the high incidence of food borne illnesses through research activities focusing on mechanisms and biomarkers of nutritionally and foodborne illnesses and disease, improving the organoleptic and nutritional quality and safety of food, as well as methods for the effective translation of research knowledge into useable data and training programs.

Existing research data indicate that much of the nutritional related illnesses are due to inappropriate nutrient-energy intake as well as inadequate physical activity. Furthermore the translation of research knowledge into effective programs for reducing these problems is not fully understood. Increasing the nutritional value of foods (whole, enriched, fortified or enhanced) through value added efforts and improving the organoleptic characteristics of foods will have a major role in consumer acceptance and food choices to reduce the illnesses associated with poor diet and inadequate nutrient intake.

7. Assumptions made for the Program

The FSP recognizes that nutrition and food are at the very heart of our existence and without it the quality of our overall life deteriorates. The quality of life and well-being of our society impacted by a variety of factors including inappropriate nutrient-energy intake and exposure to food borne pathogens. Both inappropriate nutrient-energy intake and exposure to food borne pathogens are issues that must be addressed to reduce the incidence of illnesses and diseases in the population.

Research that will examine the food quality and the nutritional value of meat, milk and value-added products is significant in food manufacturing and processing technology. Additionally, research activities will investigate the relationship between and the mechanisms of food/food component and nutritionally related disease; and identify evaluation tools, methods and instrumentation for measuring the relationship between foods and/or food components nutritionally related diseases and illnesses. These activities will help to reduce the incidence of these types of illnesses and diseases.

The acceptance of any food or food products is not only determined by its nutritional and organoleptic qualities but also by its safety. Food quality and safety are the most important factors for consumer's acceptance and consumption and are issues that are federally regulated. The movement of pesticides, herbicides and antibiotic residues throughout the food chain is of foremost importance. Research that will examine the presence of these hazards along the food chain of from the farm to the table will provide knowledge for the withdrawal process, processing methods and alternatives to traditional methods for the preservation and increase in production of meat and milk products.

8. Ultimate goal(s) of this Program

The Food System Program goals are:

1. To increase the body of knowledge in the understanding of nutrients and mechanisms implicated in illnesses and diseases.
2. To increase the body of knowledge in the area of quality and safety of meat, milk, and value-added products.

9. Scope of Program

- In-State Research
- Integrated Research and Extension

Inputs for the Program

10. Expending formula funds or state-matching funds

- Yes

11. Expending other than formula funds or state-matching funds

- Yes

12. Expending amount of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2007	0.0	0.0	0.0	15.6
2008	0.0	0.0	0.0	16.2
2009	0.0	0.0	0.0	16.8
2010	0.0	0.0	0.0	18.0
2011	0.0	0.0	0.0	18.1

Outputs for the Program

13. Activity (What will be done?)

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.

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

Extension	
Direct Method	Indirect Methods
<ul style="list-style-type: none"> ● Workshop ● Group Discussion ● Demonstrations 	<ul style="list-style-type: none"> ● Newsletters ● Billboards ● Web sites

15. Description of targeted 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.

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	250	750	200	300
2008	275	825	240	330
2009	305	900	300	400
2010	400	1000	400	500
2011	400	1000	400	500

17. (Standard Research Target) Number of Patents

Expected Patents	
Year	Target
2007	0
2008	0
2009	1
2010	1
2011	1

18. Output measures

Output Text

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

2007 Target: 7
 2008 Target: 10
 2009 Target: 12
 2010 Target: 12
 2011 Target: 15

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Text

- 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 Type: Long

2007 Target: 0
 2008 Target: 0
 2009 Target: 0
 2010 Target: 0
 2011 Target: 3

20. External factors which may affect outcomes

- Appropriations changes
- Populations changes (immigration,new cultural groupings,etc.)

Description

External factors which may affect the outcomes of the defined programs include but may not be limited to competing programmatic

challenges, population changes with respect to nutritional related illnesses, i.e. obesity, appropriations changes and the partnerships gained or loss.

Partnerships and/or collaborations with the following agencies, organization and industries are crucial in accomplishments of the program's activities and goals

-Cooperative Extension Program at the University.

-Department of Agriculture, Nutrition and Human Ecology at the University.

-Other 1862 and 1890s Land Grant Institutions.

-Texas A&M University and with other Institutions within the System.

-Linkages with Texas Medical Center (Houston, TX), Nanofluence Health Corporation (Northfield, IL), Hibiscus Plantation (Waller, TX), and Alltech Biotechnology Corporation (Lexington, KY).

As new challenges arises and are of immediate urgency, as a part of the food system program commitment to enhancing the quality of life of the underserved populations, the food systems program will address these issues. The defined program will not change unless effective programs have been implemented to alter the need as addressed.

21. Evaluation studies planned

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

Description

The food system program activities will be evaluated during and after program initiation. The progress of each activity will be measured annually as a part of the CARC fiscal year annual accomplishment and plan of work. The scientist leading each activity will have to report specifically on the progress that has been made on that activity. The progress report of the activity must include finished task, undone task and address problems and solutions with associated activity and a recommendation for continual support of activity.

The overall program will be evaluated based upon the stated outputs and outcomes. The use and input of extension personnel, industrial and other partners will help to effectively evaluate and accomplish the activities and goals of the program. The evaluation process will review whether the facilities and other resources presently at the university are adequate to accomplish the goals.

22. Data Collection Methods

- Sampling
- On-Site
- Structured
- Unstructured
- Observation
- Portfolio Reviews
- Tests
- Journals

Description

Publications, presentations, abstracts, annual reports, newsletters, workshops, field days, seminars, student thesis reports, bulletins.

1. Name of the Planned Program

Animal Systems

2. Program knowledge areas

- 305 Animal Physiological Processes 10 %
- 304 Animal Genome 20 %
- 313 Internal Parasites in Animals 10 %
- 307 Animal Management Systems 20 %
- 301 Reproductive Performance of Animals 10 %
- 303 Genetic Improvement of Animals 10 %
- 302 Nutrient Utilization in Animals 10 %
- 308 Improved Animal Products (Before Harvest) 10 %

3. Program existence

- Mature (More than five years)

4. Program duration

- Long-Term (More than five years)

5. Brief summary about Planned Program

Key research areas are designed to improve scientific understanding of physiological mechanisms affecting reproduction, growth and performance. These understandings are crucial for development of efficient production practices and promotion of a healthy and competitive livestock industry in Texas. Application of this science-based information will allow development of humane and cost-effective production practices that promote animal well-being and minimize stress. It is also necessary to produce animals that provide consumers with the quality meat and milk products they desire at an affordable cost. High production efficiency and lean growth are critical elements for expanding local and national markets and effectively competing in global markets.

6. Situation and priorities

The science and landscape of agriculture has changed in recent years because of the need to implement management practices that accommodate the continued food needs concomitant with diminishing agricultural lands. In addition, there are increased demands being placed on the traditional feed sources (i.e. corn, soybeans, wheat, etc.) used to grow and finish stock used in our consumer meat channels. More and more of our base feeds are being channeled into fuels and plastics production, which greatly impacts livestock production. Greater attention will have to be paid to alternative production schemes, in particular, more forage-based intensive systems.

7. Assumptions made for the Program

Reproductive efficiency limits profitability of animal production systems. Research will address issues that effect lifetime reproductive efficiency in grazing ruminants. Focus areas will include projects that identifying factors that influence uterine health and embryonic and fetal survival. Decreased early embryonic loss will increase farm animal production efficiency and well being.

Biotechnology allows incorporation of molecular data into genetic evaluations. Assisted reproduction technologies, marker assisted selection and germplasm conservation provide the tools to enhance genetic selection of selected phenotypes. Identification of molecular markers for desirable traits, including disease and stress resistance, will facilitate recommendations for interventions that maintain optimal herd health and profitability in the Texas Gulf Coast Region.

Enhanced public understanding of the concepts and applications of animal well-being and the physiological basis for animal growth, reproduction, and cost effective production can be achieved through field days, workshops and other educational programs.

8. Ultimate goal(s) of this Program

The overall goal of the Animal Science Research Program is to increase the efficiency of producing food from animals with an emphasis on grazing ruminants (beef cattle and goats). This will be accomplished through research activities that generate scientific and technical information on animal production systems that are applicable locally, nationally and internationally.

9. Scope of Program

- In-State Research

Inputs for the Program

10. Expending formula funds or state-matching funds

- Yes

11. Expending other than formula funds or state-matching funds

- Yes

12. Expending amount of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2007	0.0	0.0	0.0	20.8
2008	0.0	0.0	0.0	21.6
2009	0.0	0.0	0.0	22.4
2010	0.0	0.0	0.0	24.0
2011	0.0	0.0	0.0	24.2

Outputs for the Program

13. Activity (What will be done?)

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.
 - b. 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.
 - b. 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.

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

Extension	
Direct Method	Indirect Methods
<ul style="list-style-type: none"> ● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention ● Demonstrations 	<ul style="list-style-type: none"> ● Newsletters ● Web sites

15. Description of targeted 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.

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	500	250	35	300
2008	550	275	40	330
2009	600	300	40	360
2010	650	325	40	390
2011	700	350	40	420

17. (Standard Research Target) Number of Patents

Expected Patents	
Year	Target
2007	0
2008	0
2009	0
2010	1
2011	1

18. Output measures

Output Text

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.

2007 Target: 5
2008 Target: 10
2009 Target: 15
2010 Target: 20
2011 Target: 25

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Text

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 Type: Medium

2007 Target: 0
2008 Target: 0
2009 Target: 0
2010 Target: 0
2011 Target: 0

20. External factors which may affect outcomes

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

Description

Meaningful program content is dependent on an awareness of industry and producer needs and trends over the short and long term. These needs are determined by maintaining contact with industry, producer, consumer, state and federal organizations which having cutting edge statistics and other knowledge on agriculture trends and demands. Program inputs/design, implementation and output assessment will be monitored to allow for future directions. This requires a close working relationship between extension, research and academics within and external to our own university structure as well as with local, state and federal agencies. Measurable outcomes of program inputs will be evaluated to determine effectiveness in accomplishing program goals and objectives. Groups involved in program development, implementation and assessment include:

The Cooperative Extension Program at PVAMU
The Department of Agriculture, Nutrition and Human Ecology at PVAMU
1862 and 1890 Land Grant Institutions
Texas Agricultural Experiment Station
Texas A&M University
Texas A&M University System institutions
Texas Medical Center in Houston
Agribusiness Linkages

Livestock producers, the public, the scientific community, extension personnel, faculty and students.

21. Evaluation studies planned

- Retrospective (post program)
- During (during program)

Description

Formative evaluations will be conducted yearly as part of our yearly plan of work update/evaluation. A summative evaluation will be conducted at the end of the 5 year plan of work. Progress at achieving our goals will be evaluated annually taking into consideration specific goals, measurable objectives, and quantifiable outcomes stated in the yearly plan of work.

22. Data Collection Methods

- Sampling
- On-Site
- Structured
- Unstructured
- Observation
- Portfolio Reviews
- Tests
- Journals
- Other

Description

Publications, presentations, abstracts, annual reports, newsletters, workshops and field days, conferences, seminars, student graduation rates, external funding.

1. Name of the Planned Program

Plant and Environmental Systems

2. Program knowledge areas

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

3. Program existence

- Mature (More than five years)

4. Program duration

- Long-Term (More than five years)

5. Brief summary about Planned Program

The Plant and Environmental Systems Research Program has numerous projects that have been designed based on more than 20 years of research experience in the specific fields of study. Project work has been pursued on an individual as well as a collaborative basis during this time period; however the group will enter a new phase by developing one major project in which all team members contribute some portion of the work based upon their expertise, while maintaining the previous track record of focused research.

The major project to be pursued by the group will focus on a very important and vital portion of the regional environment, the Texas Gulf Coast Prairie Wetland Ecosystems. The project activities will be focused on 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; h) 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.

6. Situation and priorities

Agricultural, environmental and energy resources within the state of Texas and the U.S.A. must be protected in order to maintain our quality of life as well as to provide stable economic growth. Identification of growth areas for continued collaborative research will strengthen our partnerships on all levels, including: university (departmental), regional (other universities and state agencies) and national (federal agencies).

7. Assumptions made for the Program

1. Plant systems research is valued highly by our stakeholders.
2. Environmental systems components are beneficial to communities.
3. Applied and supporting basic research serve to bolster our fundamental knowledge within the food and agricultural sciences.

8. Ultimate goal(s) of this Program

1. To develop and maintain a premier research program focused on applied and basic research in plant and environmental systems studies.
2. To promote a central core research concept with associated integrated research, teaching, and extension components.
3. To serve our local and regional communities by providing plant and environmental systems knowledge which guides the growth of the urban fringe.

9. Scope of Program

- In-State Research
- Integrated Research and Extension
- Multistate Integrated Research and Extension
- Multistate Research

Inputs for the Program

10. Expending formula funds or state-matching funds

- Yes

11. Expending other than formula funds or state-matching funds

- Yes

12. Expending amount of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2007	0.0	0.0	0.0	15.6
2008	0.0	0.0	0.0	16.2
2009	0.0	0.0	0.0	16.8
2010	0.0	0.0	0.0	18.0
2011	0.0	0.0	0.0	18.1

Outputs for the Program

13. Activity (What will be done?)

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).

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

Extension	
Direct Method	Indirect Methods
<ul style="list-style-type: none"> ● Education Class ● Workshop ● Group Discussion ● One-on-One Intervention 	<ul style="list-style-type: none"> ● Public Service Announcement ● Newsletters ● TV Media Programs ● Web sites

● Demonstrations	
------------------	--

15. Description of targeted 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.

16. Standard output measures

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

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
2007	15	200	40	200
2008	20	150	40	250
2009	15	150	50	250
2010	15	200	50	300
2011	15	250	50	350

17. (Standard Research Target) Number of Patents

Expected Patents	
Year	Target
2007	1
2008	1
2009	1
2010	1
2011	1

18. Output measures

Output Text

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.

- 2007 Target: 5
- 2008 Target: 10
- 2009 Target: 15
- 2010 Target: 20
- 2011 Target: 25

Outcomes for the Program

19. Outcome measures

Outcome Text: Awareness created

Outcome Text

- 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 Type: Long

2007 Target: 0

2008 Target: 0

2009 Target: 0

2010 Target: 0

2011 Target: 0

20. External factors which may affect outcomes

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

Description

Our regional climatic dynamics can have an extremely adverse effect on our applied systems research. Economic, appropriations, and policy changes will determine our ability to address focus areas. Government regulations will direct our focus as landowners and endusers seek our knowledge to address plant and environmental systems needs.

21. Evaluation studies planned

- Retrospective (post program)
- During (during program)

Description

Evaluations of program efforts will occur during the ongoing study phase and will consist of measures that indicate a clear focus on outcomes from the studies.

22. Data Collection Methods

- Sampling
- Observation
- Portfolio Reviews

Description

Methods to address data collection will include sampling of research outcomes based on observation and portfolio reviews. Care will be given to maintain confidentiality within the project framework while allowing outcomes to be clearly recorded based upon level of importance to stakeholders.