

# 2010 Clemson University and South Carolina State University Combined Research and Extension Plan of Work

Status: Accepted  
Date Accepted: 06/03/09

## I. Plan Overview

### 1. Brief Summary about Plan Of Work

South Carolina's updated plan of work reflects a continuation of the primary land grant mission to support economic and community development in the traditional agricultural, animal and plant emphasis areas. This also involves work in food safety and nutrition, natural resources and the environment, youth development, community and economic development and improving the daily quality of life of all segments of the state's population.

Efforts to improve the quality of food while holding production costs down will be complemented by efforts to improve the nutritional value of foods and development of programs to increase citizen awareness of healthy eating habits and the dangers inherent in obesity. Close working relationships with the state's various commodity groups will continue and programs in the plan of work will reflect the ongoing interaction with key stakeholders. Underrepresented and underserved populations in the state will continue to be a source of stakeholder input.

Biotechnology will continue to be an expanding focus of research as its applications reach into more of the program areas. Issues related to the quality and quantity of water will draw increased research attention with the application of state of the art remote sensing devices to gauge water quality and policy work to address issues of availability and utilization of available water sources.

Agricultural profitability will continue as a primary thrust of research and extension efforts in animals, vegetables, turf and ornamentals, agronomic crops and the rapidly expanding area of plant medicines. In addition, there are nine program areas currently appearing in South Carolina's Plan of Work. The areas include Sustainable Animal Production Systems, Sustainable Agricultural Production for Horticultural Crops, Sustainable Agricultural Production for Agronomic Crops, Water Quality and Quantity, Agricultural Biotechnology, Food Safety and Nutrition, Community Leadership and Economic Development, 4-H Youth Development and Families and Sustainable Forest Management. One activity, integrated pest management which has appeared in previous plans has been merged into the agronomic crops and horticultural crops programs.

There will continue to be a focus on providing family resource management and educational programs to improve the well-being of the family structure within limited resource communities; and to promote change in the lives of youth and to strengthen family values through youth development programming. Leadership programming will be provided to assist limited resource communities with leadership development education programs and tie leadership development to community economic development initiatives within communities. Research activities will address the social, economic and educational problems and issues negatively impacting rural communities in South Carolina. Programs will be designed to alert, inform, and educate high school students in the fundamental concepts of financial planning.

The 1890 Research and Extension Program has several priority goals to accomplish during the next five year cycle of the Plan of Work. The priority goals include beginning reconstruction of the Camp Harry Daniels Facility, securing land and constructing cluster centers in target counties across the State, expanding the Mobile Technology Center Outreach, increasing the involvement of faculty and the number of inter-disciplinary research projects, expanding internal and external collaborations and partnerships to build the land-grant capacity and launching campus/community health initiatives to address health disparities. 1890 plans to increase their external funding to support programmatic and operational initiatives.

Extension will take its programs and services to the people as the Mobile Technology Unit travels to remote areas of the state providing wireless computer Internet access to facilities within a 100 yard radius. The Community Development Cooperation (CDC) will continue to assist residents with home repairs (minor and major) to revitalize communities.

South Carolina State University and Clemson University, the state's two land grant universities, will increase coordination and cooperation in research and extension programming. Multi-state research activities will continue to be emphasized and the levels of participation in projects will be increased. Faculty will be encouraged to initiate the formation of new projects and actively participate in establishing multi-state projects with their colleagues in other states in the region and across the country. Research faculty will continue to be encouraged and supported in their efforts to obtain outside funding to leverage their federal and state funding base.

**Estimated Number of Professional FTEs/SYs total in the State.**

Year	Extension		Research	
	1862	1890	1862	1890
2010	149.0	43.0	43.0	13.0
2011	157.0	47.0	43.0	18.0
2012	160.0	50.0	43.0	20.0
2013	160.0	50.0	44.0	20.0
2014	170.0	0.0	44.0	0.0

**II. Merit Review Process**

**1. The Merit Review Process that will be Employed during the 5-Year POW Cycle**

- Internal University Panel
- External Non-University Panel
- Expert Peer Review

**2. Brief Explanation**

The Research and Program Development Committee of the South Carolina State Extension Advisory Council is responsible for reviewing and commenting on new programs initiated by Clemson University and South Carolina State University. The fourteen member Research and Program Development Committee is one of the council's three committees. The committee members are knowledgeable of South Carolina's social and economic demographics and are sensitive to the needs of underserved and underrepresented populations. The Research and Program Development Committee will have the advantage of the expertise of the other twenty-six council members as they review new programs for the state. The program review activities of the committee will complement the scientific peer review process established at both institutions. The members serve three-year terms and the council meets face to face two times each year and holds electronic meetings throughout the year as needed. Three evaluation criteria are used in the merit review process, which include relevance, capacity and impact. Relevance refers to the appropriateness/applicability of programs to address the critical issues facing South Carolina. Capacity is the ability to develop, implement and evaluate programs. Impact refers to the effectiveness of programs in accomplishing the goals.

**III. Evaluation of Multis & Joint Activities**

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

Multi-state research programs are the result of extended collaboration and consultation between faculty members in the respective states. The decision to move forward with a regional program is based on the appropriateness of the program to address critical issues, the ability of faculty to develop, implement and evaluate the program and on the potential for the program to be effective meeting the identified needs of the citizens and industries in the state.

Planned Extension programs will be those that address critical needs as identified by local stakeholders. In addition, relevant nationally identified issues will be addressed. Examples of criteria used are:

- Does the program address major societal problem, need, or opportunity that is well-defined and documented?
- Does the program have an identified evidenced base?
- Can Extension impact be measured and reported?
- Does the program fit within the strategic goals of PSA?
- Can effective marketing and public awareness methods be implemented?
- Does the program attract financial and other resources and is supported by systematic fund development?
- Can skills and expertise of paid and volunteer staff be used?
- What partnerships can be established?
- Does the program have an appropriate delivery system in place for effective implementation?
- Does the program identify internal and external resources and expertise?

Delivery methods can be implemented through face to face interactions, distance education, electronic methods, printed

material, media, etc.

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

Research and Extension program activities address issues which impact all segments of the population, to include youth and family issues, nutrition, food safety, bio-security, water and natural resources, and those relating to plants and animals. Underserved and underrepresented populations will be used to identify areas of need. Stakeholder input is particularly critical in identifying programs that have a broad reach in terms of numbers and economic groups, especially limited-resource persons, which can be served. Results in the form of knowledge and its application will be transferred through the resources of Extension in the various states.

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

The planned and potential impact of each program is outlined in the program's initial design. Outcomes and impacts are key discussion areas as decisions are made to initiate, continue or terminate programs. Typically, outcomes and impacts are presented in terms of new knowledge and new applications of current knowledge. The descriptions of the outcomes may include descriptions of the products, processes and procedures that are anticipated and may reflect the number of individuals, communities and industries who are anticipated to benefit.

Goals, objectives, target audience, and measureable outcomes and impacts will be identified. Impact will be assessed through established indicators for all projects. The Clemson University Management Information System (CUMIS) is a web based reporting system that provides data relative to toward programs, numbers of programs conducted, number of persons completing programs, knowledge gain, economic gain through generation of additional income on savings, adoption of practices as a result of participation, and contacts made for the Cooperative Extension Service. Individuals with Extension appointments report his/her activities each month in the system. In addition, narrative summaries will be used.

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

The programs in the plan of work are designed for periodic evaluation to ensure that they are on target to meet the specified goals. Technically, for the periodic evaluation, the use of an informal review session to complement the annual written progress reports helps to refine the approach and the deliverables while the program is still in progress as programs meet objectives and conclude. The comparison of the initial goals and the actual outcomes is used in the design of new programs.

## **IV. Stakeholder Input**

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

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

#### **Brief explanation.**

Stakeholder input remains a key to successful extension programs. Clemson and South Carolina State have a long history and tradition of seeking stakeholder input into the plan of work process. The process of seeking stakeholder input included the identifying stakeholders that should have input in the POW process and determining the process used in seeking stakeholder input.

The most recent process used in seeking stakeholder input included meetings that were held in all counties in the state to identify issues and set priorities for agricultural research and Extension. Stakeholders were identified and invited to attend a meeting. Stakeholders included those internal to the Cooperative Extension System – administrators, extension agents, agent associations, specialists, faculty, department chairs, associate deans, and faculty, as well as, those external to the system. External stakeholders are Extension advisory boards members, commodity group representatives, community leaders,

human service providers, business/industry representatives, and collaborators (Farm Bureau, Chamber of Commerce, Farm Service Agencies, etc).

**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 Internal Focus Groups
- Use Advisory Committees
- Needs Assessments
- Use Surveys
- Use External Focus Groups
- Open Listening Sessions

**Brief explanation.**

The meetings were attended by county advisory committee members and other key stakeholders. A Nominal Group Technique (NGT) was used to garner stakeholder input for the Plan of Work process. NGT is a process that allows a group of individuals to generate a large number of ideas in a relatively short period of time. NGT is helpful in identifying problems, exploring solutions and establishing priorities.

Several steps were involved in conducting the NGT. First, each of the 46 South Carolina counties was asked to conduct a NGT. Second, instructions were provided to all county offices/county directors of the steps involved in conducting the NGT. Third, to assure diversity, emphasis was placed on obtaining a cross section of people that represent the local community. Fourth, a set of rules and procedures was established for the smooth operation of NGT. Fifth, a series of questions were identified to which stakeholders were to respond.

Annual meetings around the state that are open to the general public will be held to gain input on stakeholder interests, concerns, and needs.

**2(B). A brief statement of the process that will be 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 specifically with non-traditional groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder groups
- Survey specifically with non-traditional groups
- Meeting with traditional Stakeholder groups
- Meeting with the general public (open meeting advertised to all)
- Meeting with invited selected individuals from the general public
- Survey of traditional Stakeholder individuals

**Brief explanation**

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

- Redirect Extension Programs
- In the Action Plans
- Redirect Research Programs
- To Set Priorities
- To Identify Emerging Issues
- In the Staff Hiring Process

**Brief explanation.**

State Program Leaders identified the major programs for the new federal plan of work using the identified list of issues. The

programs were defined using the logic model. The state plan of work, which includes specific initiatives and projects, will be developed based on the identified programs. The process is used to identify emerging issues and to redirect Extension programs. In addition, the priorities identified are considered when hiring staff and when establishing action plans. Through these and other efforts, the South Carolina Cooperative Extension System is kept current on stakeholder programs and services that have the potential to affect public policy, social, economic value and efficiency, environmental quality and individual well-being.

**V. Planned Program Table of Content**

<b>S. NO.</b>	<b>PROGRAM NAME</b>
1	Sustainable Animal Production Systems
2	Sustainable Agriculture Production for Horticultural Crops
3	Sustainable Agronomic Crop Systems
4	Water Quality and Water Quantity
5	Biotechnology
6	Food Safety and Nutrition
7	Community, Leadership, and Economic Development
8	4-H Youth Development and Families
9	Environmental Conservation for Wildlife
10	Sustainable Forest Management

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

**Program #1**

**1. Name of the Planned Program**

Sustainable Animal Production Systems

**2. Brief summary about Planned Program**

The program will have two primary research components. The first is animal health and animal productivity in beef and dairy cattle through integrated resource management, grazing initiatives, some of which focus on the marketing of forage-fed beef, and other selected management techniques, to include proteomic and genetic approaches to investigate mammary development in dairy cattle. Related work will also continue on modifying milk fat composition for improved nutritional and market value. The second component deals with genetic bases for resistance and immunity to avian diseases and more specific work on the effects of fumonisin B-1 on chicken immunity.

In South Carolina, Clemson is the sole source for providing training as required by law for all livestock and poultry producers to receive their waste permits. The Confined Animal Manure Management Training Program (Camm) is an educational program that is required by state law for all livestock and poultry producers as a condition of their waste permit. All new producers must attend the program within one year of beginning operation. All swine producers, and all large dairy and poultry producers are required to be certified animal manure managers. Producers are required to pass a comprehensive exam on manure management to obtain certification. All animal waste permit holders are required to obtain 10 hours of recertification credit every five years. Clemson Extension provides seminars, field days, and conference presentations to provide the required continuing education.

Extension will provide programs to improve the production efficiency, grazing management and marketing of confined animal systems, provide programs on current and emerging specialty animal industries, protect water quality in and from pastures, increase awareness of herd health and reproduction, promote energy conservation, nutrient management, improve siting of facilities, and improve alternative waste handling practices.

In Extension, the Livestock Program (Beef Cattle Improvement and Meat Goat) provides small-scale, limited-resource farmers hands-on trainings and promotes an alternative livestock enterprise compatible with farm size and system.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**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	20%	20%	20%	20%
302	Nutrient Utilization in Animals	20%	20%	20%	20%
303	Genetic Improvement of Animals	15%	15%	15%	15%
307	Animal Production Management Systems	20%	20%	20%	20%
308	Improved Animal Products (Before Harvest)	15%	15%	15%	15%
315	Animal Welfare, Well-Being and Protection	10%	10%	10%	10%
	<b>Total</b>	100%	100%	100%	100%

## V(C). Planned Program (Situation and Scope)

### 1. Situation and priorities

Production and income from beef cattle has been increasing since 2002, and in 2003 the state produced 318 million pounds of milk and milk cash receipts from marketing increased from 2003 to 2004. South Carolina ranks 12th in the nation in broiler production, raising 204,500,000 in 2004, representing a 4% increase from the previous year, and so this area is meeting the needs of a large and expanding agricultural industry. Continuing momentum in the agribusiness components requires a solid research base and a knowledgeable agent base.

There is concern for the small-scale livestock producers in South Carolina not being able to receive premiums for their cattle. Many producers lack the proper facilities needed to administer the animal health products required for premium prices. Seminars, workshops as well as equipment needs will be addressed to assist the limited-resource farmer.

Public concern over the management of animal manure has become a major environmental issue in South Carolina centered on water quality (surface and groundwater) and gaseous emissions including odors. There is less tolerance for odors yet more potential for surrounding neighbors to be impacted by odors because of the location of operations in communities. Social problems have created an ever-increasing hostility between animal producers and surrounding neighbors. In addition, animals have not been efficient users of nutrients supplied in their diets. Therefore, significant plant nutrients are found in animal manures. The nutrients, particularly nitrogen, phosphorus, and potassium, are needed for crop inputs for crops like corn and soybean. Surveys indicate that nearly one half of all animal manure applied to land is not credited as a nutrient source. Animal manure nutrients can be applied at excessive rates if better management practices are not adopted. The excessive rates of application can lead to both surface and groundwater pollution.

### 2. Scope of the Program

- Multistate Research
- In-State Extension
- In-State Research

**V(D). Planned Program (Assumptions and Goals)**

**1. Assumptions made for the Program**

It is assumed that there is market demand for forage-fed beef, improved nutritional value in milk, and that producers need every advantage and the latest knowledge to remain competitive in their businesses. It is also assumed that disease resistance in poultry flocks is an area of critical importance and of great interest to the poultry industry in South Carolina and in neighboring states.

Educational programs can teach producers best management practices that lead to production and economic efficiency. The Animal Production program promotes an alternative livestock enterprise, assists farmers in improving their niche market, and provides access to pure breed bulls.

**2. Ultimate goal(s) of this Program**

The goals of the program are to support the development of niche markets for beef, dairy and poultry producers, allow farmers in the state to diversify their operations and make local products available to the citizens of the state, develop and implement animal production systems that are economically sustainable and environmentally sound, and provide training that will increase herd management skills and assist producers in making informed business decisions.

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

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2010	9.0	6.0	5.1	0.0
2011	10.0	6.0	5.1	0.0
2012	10.0	7.0	5.5	0.0
2013	10.0	7.0	5.5	0.0
2014	11.0	0.0	5.7	0.0

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

**1. Activity for the Program**

Activities will include research on animal health and animal productivity in beef and dairy cattle through integrated resource management, and grazing initiatives, and specific work on the effects of fumonisin B-1 on chicken immunity.

Educational programs will be conducted that focus on animal production systems.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

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

**3. Description of targeted audience**

Producers, Limited-Resource Farmers and Extension personnel, agency personnel

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

**1. 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
2010	14500	5100	0	0
2011	14500	5600	0	0
2012	15000	5900	0	0
2013	15000	5900	0	0
2014	15500	10000	0	0

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

**Expected Patent Applications**

2010 :1                      2011 :0                      2012 : 1                      2013 :0                      2014 : 1

**3. Expected Peer Review Publications**

Year	Research Target	Extension Target	Total
2010	8	0	12
2011	8	0	12
2012	10	2	17
2013	12	2	14
2014	12	1	0

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

**1. Output Target**

- Disclosures

2010 :1                      2011 2                      2012 :1                      2013 2                      2014 0

- Licenses

2010 :1                      2011 0                      2012 :0                      2013 0                      2014 0

- Number of people completing educational workshops

2010 :8700                      2011 9800                      2012 :9850                      2013 :11000                      2014 :15000

**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	Number of publications authored or co-authored (fact sheets, papers presented at Extension meetings, etc.)
2	Increased percentage of forage fed beef production in the state and the region.
3	Number of people reporting increased knowledge

**Outcome #1**

**1. Outcome Target**

Number of publications authored or co-authored (fact sheets, papers presented at Extension meetings, etc.)

**2. Outcome Type :** Change in Condition Outcome Measure

**2010 :** 6                      **2011 :** 6                      **2012 :** 6                      **2013 :** 10                      **2014 :** 0

**3. Associated Institute Type(s)**

- 1862 Research
- 1890 Research

**4. Associated Knowledge Area(s)**

- 301 - Reproductive Performance of Animals
- 307 - Animal Production Management Systems

**Outcome #2**

**1. Outcome Target**

Increased percentage of forage fed beef production in the state and the region.

**2. Outcome Type :** Change in Condition Outcome Measure

**2010 :** 4                      **2011 :** 3                      **2012 :** 3                      **2013 :** 3                      **2014 :** 0

**3. Associated Institute Type(s)**

- 1862 Research

**4. Associated Knowledge Area(s)**

- 302 - Nutrient Utilization in Animals
- 307 - Animal Production Management Systems

**Outcome #3**

**1. Outcome Target**

Number of people reporting increased knowledge

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010 :** 3900                      **2011 :** 4000                      **2012 :** 4050                      **2013 :** 5500                      **2014 :** 12000

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 307 - Animal Production Management Systems
- 315 - Animal Welfare, Well-Being and Protection

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

**1. External Factors which may affect Outcomes**

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

**Description**

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

**1. Evaluation Studies Planned**

- Case Study
- Retrospective (post program)
- After Only (post program)
- Comparison between locales where the program operates and sites without program intervention
- Before-After (before and after program)
- During (during program)

**Description**

**2. Data Collection Methods**

- Telephone
- On-Site
- Case Study
- Tests
- Mail
- Observation
- Sampling
- Unstructured

**Description**

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

**Program #2**

**1. Name of the Planned Program**

Sustainable Agriculture Production for Horticultural Crops

**2. Brief summary about Planned Program**

The research element of the program for improving productivity and profitability of the SC peach industry includes developing and improving pome and stonefruit rootstocks through breeding and genetic engineering, focused on resistant gene candidates. The eradication, containment and/or management of Plum Pox disease and other viruses in peaches is a major component of the program, as is acquiring new rootstocks from worldwide sources. Providing expertise in the diagnosis of viral diseases and formulating methods for the control of viral diseases, nepoviruses and other viruses associated with virus like symptoms seen in SC melons, and watermelon mosaics virus and other viruses found in cucurbits constitute a second major research program element. A third research element of the program will facilitate the development of virus control programs by identifying the pathogens associated with the disease, determining epidemiological properties, developing strategies and assist in their implementation. The research program will have several other activities underway paralleling the three elements focusing on improving productivity and profitability. These include rapid screening of pesticide residues in fruits, biological control of soil-borne plant pathogens and characterizing causal agents associated with graft-transmissible diseases of unknown etiology to facilitate the development of rapid diagnostics and appropriate control measures.

For Extension, the program will focus on developing and implementing agricultural production systems that are economically sustainable and environmentally sound. Objectives include improving profitability and reducing negative environmental impacts of horticultural cropping systems, increasing efficiency of production, and increasing the supply and dissemination of information and knowledge about IPM strategies and systems that are available to growers. Educational programs and field trials will be conducted and sound agriculture practices and policies will be promoted. Educational and technical assistance to small scale, part-time limited resource farmers will be provided. Farmers are encouraged to utilize the latest practices. Establish on-going technical assistance programming for small minority farmers and increase their profitability in farming.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

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

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	10%	10%	10%	10%
202	Plant Genetic Resources and Biodiversity	10%	10%	10%	10%
204	Plant Product Quality and Utility (Preharvest)	10%	10%	10%	10%
205	Plant Management Systems	15%	15%	15%	15%
211	Insects, Mites, and Other Arthropods Affecting Plants	10%	10%	10%	10%
212	Pathogens and Nematodes Affecting Plants	10%	10%	10%	10%
215	Biological Control of Pests Affecting Plants	10%	10%	10%	10%
216	Integrated Pest Management Systems	15%	15%	15%	15%
601	Economics of Agricultural Production and Farm Management	10%	10%	10%	10%
	<b>Total</b>	100%	100%	100%	100%

### V(C). Planned Program (Situation and Scope)

#### 1. Situation and priorities

An intensive, high-input agricultural production system has put stress on the environment and on our rural communities. Intensive agricultural production has contributed to depletion of soil resources and contamination of groundwater. It has also increased the cost of production, putting economic stress on farm families and rural communities. In response to problems there has been an increasing emphasis on development of sustainable agricultural production systems. Integrated Crop Management (ICM) is an approach to farming which aims to balance production with economic and environmental considerations by means of a combination of measures including crop rotation, cultivations techniques, appropriate crop varieties and careful use of inputs. In addition, horticultural crops, like peaches, are threatened with new viruses and other diseases. The peach industry in South Carolina, for example, is under pressure from Plum Pox disease and other viruses.

There is an information need among South Carolina residents related to the improvement of environmentally sound horticultural practices. Through consumer education in environmental horticulture and by developing a pool of well-trained volunteers, this program can significantly enhance Extension's ability for education and outreach and increase service hours toward direct enhancement of the horticultural practices of individuals. Consumers will be trained on environmentally sound horticultural practices (i.e. plant identification, selection, culture, pest identification, and integrated pest management) to improve their neighborhoods in a socially acceptable manner that does not contaminate the environment with excess fertilizer, inappropriate pesticides, or harmful exotic plants.

**2. Scope of the Program**

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

**V(D). Planned Program (Assumptions and Goals)**

**1. Assumptions made for the Program**

Educational programs will provide growers with information so that they can make informed decisions to improve profitability and reduce the negative environmental impacts of horticultural cropping systems. The educational activities will minimize off-farm inputs for low income producers and maximize on-farm resources.

Techniques for eradicating, containing or managing viral diseases and nepoviruses will increase the profitability of the fruit industry in SC as well as slow the economic decline of small farms. Research and program delivery can increase awareness of risks with agriculture production. Training workshops can provide adequate recording keeping techniques.

**2. Ultimate goal(s) of this Program**

The goal is to reduce costs, negative environmental impacts, and increase profitability for SC fruit growers. In addition, the program will encourage growers to adopt new horticultural production practices. The program will help to simplify farm record keeping, which encourages participants to maintain farm records on a continuous basis and improve financial management; educate farmers on ways to implement production systems that require the application of low off-farm input and provide opportunities for farmers to grow crops that satisfy consumer demand within environmentally safe conditions.

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

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2010	27.0	6.0	10.1	3.0
2011	27.0	6.0	10.1	3.0
2012	27.0	7.0	10.1	5.0
2013	27.0	7.0	10.1	5.0
2014	28.0	0.0	10.1	0.0

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

**1. Activity for the Program**

Educational programs will be conducted. Field trials will be conducted and demonstrated. Evaluation programs will provide growers with comprehensive and updated information on performance so that they can make informed decisions, especially about the selection of profitable peach varieties for new plantings. Promote and encourage activities that foster sustainable agriculture practices and policies. Research will focus on ways to eradicate, contain and manage viral diseases impacting fruit in SC as well as increase the capacity to manipulate and control pest species such as the fruitfly.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

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

**3. Description of targeted audience**

Producers, small farmers and Extension personnel, horticulture professionals, residents in counties with Master Gardener programs, Master Gardeners, consumers

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

**1. 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
2010	19000	5700	0	0
2011	19000	5800	0	0
2012	19000	5800	0	0
2013	19000	6000	0	0
2014	19000	10000	0	0

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

**Expected Patent Applications**

2010 :0                      2011 :1                      2012 :0                      2013 :1                      2014 :1

**3. Expected Peer Review Publications**

Year	Research Target	Extension Target	Total
2010	8	60	8
2011	8	55	8
2012	10	40	10
2013	14	40	16
2014	0	35	0

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

**1. Output Target**

- Disclosures

2010 2                      2011 2                      2012 :1                      2013 2                      2014 :1

- Licenses

<b>2010</b> 0	<b>2011</b> 0	<b>2012</b> .0	<b>2013</b> .1	<b>2014</b> 0
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- Number of people completing horticultural educational workshops

<b>2010</b> 5400	<b>2011</b> 5500	<b>2012</b> 5500	<b>2013</b> 6000	<b>2014</b> 8000
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**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	Number of participants reporting profitability gain
2	Number of Master Gardeners reporting activities and programs
3	Number of people receiving information from Master Gardeners
4	Percent increase in profitability in the peach and melon industries
5	Number of participants gaining knowledge
6	Number of acres affected by ICM

**Outcome #1**

**1. Outcome Target**

Number of participants reporting profitability gain

**2. Outcome Type :** Change in Condition Outcome Measure

**2010 :**150                      **2011 :** 200                      **2012 :** 200                      **2013 :** 250                      **2014 :**200

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems

**Outcome #2**

**1. Outcome Target**

Number of Master Gardeners reporting activities and programs

**2. Outcome Type :** Change in Action Outcome Measure

**2010 :**1300                      **2011 :** 1400                      **2012 :** 1400                      **2013 :**1400                      **2014 :**1500

**3. Associated Institute Type(s)**

- 1862 Extension

**4. Associated Knowledge Area(s)**

- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems

**Outcome #3**

**1. Outcome Target**

Number of people receiving information from Master Gardeners

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010 :**45000                      **2011 :** 48000                      **2012 :** 48000                      **2013 :** 50000                      **2014 :**50000

**3. Associated Institute Type(s)**

- 1862 Extension

**4. Associated Knowledge Area(s)**

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems

**Outcome #4**

**1. Outcome Target**

Percent increase in profitability in the peach and melon industries

**2. Outcome Type :** Change in Condition Outcome Measure

**2010 :** 0                      **2011 :** 2                      **2012 :** 3                      **2013 :** 3                      **2014 :** 0

**3. Associated Institute Type(s)**

- 1862 Research

**4. Associated Knowledge Area(s)**

- 202 - Plant Genetic Resources and Biodiversity
- 212 - Pathogens and Nematodes Affecting Plants
- 601 - Economics of Agricultural Production and Farm Management

**Outcome #5**

**1. Outcome Target**

Number of participants gaining knowledge

**2. Outcome Type :** Change in Condition Outcome Measure

**2010 :** 5750                      **2011 :** 5900                      **2012 :** 5900                      **2013 :** 7000                      **2014 :** 7000

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 216 - Integrated Pest Management Systems

**Outcome #6**

**1. Outcome Target**

Number of acres affected by ICM

**2. Outcome Type :** Change in Condition Outcome Measure

**2010 :** 60400                      **2011 :** 70650                      **2012 :** 70000                      **2013 :** 70000                      **2014 :** 70000

**3. Associated Institute Type(s)**

- 1862 Extension

**4. Associated Knowledge Area(s)**

- 204 - Plant Product Quality and Utility (Preharvest)
- 205 - Plant Management Systems
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems
- 601 - Economics of Agricultural Production and Farm Management

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

**1. External Factors which may affect Outcomes**

- Populations changes (immigration,new cultural groupings,etc.)
- Economy
- Competing Programmatic Challenges
- Government Regulations
- Natural Disasters (drought,weather extremes,etc.)
- Competing Public priorities

**Description**

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

**1. Evaluation Studies Planned**

- Before-After (before and after program)
- Retrospective (post program)
- After Only (post program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention
- During (during program)

**Description**

**2. Data Collection Methods**

- Unstructured
- Sampling
- On-Site
- Observation
- Tests
- Whole population
- Structured
- Telephone

**Description**

**V(A). Planned Program (Summary)****Program #3****1. Name of the Planned Program**

Sustainable Agronomic Crop Systems

**2. Brief summary about Planned Program**

Agricultural firms today are forced to consider greater market, financial, production, and environmental risks than in the past, which require a significant change in agribusiness management philosophy. In addition, US agriculture is a \$1 trillion-per-year industry, responsible for 1/6 of the gross national production. Reducing South Carolina's vulnerability to terrorism and responding rapidly to suspected activity is more important now than ever. As South Carolina faces major concerns of emerging disease outbreaks, invasive plant species introduction, exotic plant pest and disease introduction, food safety, and other agroterrorism issues, the roles of state/county emergency officers and first responders are rapidly expanding.

The program will develop and implement agricultural production systems that are economically sustainable and environmentally sound. Objectives are to: improve profitability and production efficiency of agronomic cropping systems, reduce negative environmental impacts of agronomic cropping systems, improve energy conservation during agronomic production, increase level of adoption of new agronomic production systems, increase level of adoption of alternative methods of nutrient and pest management, provide timely commodity situation and outlook information to assist in choosing appropriate market risk management strategies, provide training and educational programs on market assessment and appropriate marketing strategy selection for agricultural commodities, provide educational programs to assist small and limited resource firms in understanding and effectively operating within the parameters of their relevant market, and improve state, regional, and local capabilities to detect, recognize, diagnose, prevent and respond to agroterrorism and threats to food safety.

Research is being focused on field crops which have experienced substantial production increases in the state to include, wheat, cotton, peanuts and soybeans.

Wheat: Developing high yielding high test weight wheat populations with improved disease resistance and insect resistance levels that could lead to the release of wheat varieties or germplasm adapted to the Southeastern US.

Cotton: Comparing the performance of newer cotton cultivars to older established cultivars and assessing the differences in yield, maturity and fiber quality among newly developed transgenic siblings and their recurrent parents.

Peanuts: Improving the economic and environmental sustainability of peanut crop management systems.

Soybeans: Identifying novel gene targets for improvement of stress responses in soybeans. Determining the effects of narrow vs. wide row soybean production systems on yield losses due to Columbia lance and soybean cyst nematodes, and develop damage thresholds. Developing high yielding soybean cultivars, both conventional and glyphosate tolerant, adapted to SC and other areas of the Southeast, and cultivars and/or germplasm with resistance/tolerance to Soybean Cyst and the Columbia Lance Nematodes. Identifying superior soybean competitive cultivars and associated morphological and phenological characteristics for wide and narrow row soybeans.

There is a coordinated effort underway to support improvement in all field crops which includes the development of research data sets centered on quantifying the crop yield enhancement input requirements, soil quality improvement and water quality protection resulting from the use of new cropping practices, precision farming technologies, transgenic varieties and cropping systems that integrate the three.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)****1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
204	Plant Product Quality and Utility (Preharvest)	10%	10%	10%	10%
205	Plant Management Systems	10%	10%	10%	10%
211	Insects, Mites, and Other Arthropods Affecting Plants	10%	10%	10%	10%
212	Pathogens and Nematodes Affecting Plants	15%	15%	15%	15%
213	Weeds Affecting Plants	10%	10%	10%	10%
215	Biological Control of Pests Affecting Plants	10%	10%	10%	10%
216	Integrated Pest Management Systems	15%	15%	15%	15%
601	Economics of Agricultural Production and Farm Management	10%	10%	10%	10%
604	Marketing and Distribution Practices	10%	10%	10%	10%
	<b>Total</b>	100%	100%	100%	100%

### V(C). Planned Program (Situation and Scope)

#### 1. Situation and priorities

Changes in government regulations and the economic environment have increased the risk of farming in South Carolina. Both large scale and small and limited resource farms are forced to consider greater market, financial, production, and environmental risks than in the past. The risks will require a significant change in agribusiness management philosophy and also provide a challenge to develop risk-oriented educational programs. Crops such as wheat, cotton, peanuts and soybeans have experienced substantial production increases in South Carolina.

#### 2. Scope of the Program

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

**V(D). Planned Program (Assumptions and Goals)**

**1. Assumptions made for the Program**

Improved varieties and production practices through enhanced input requirements, soil quality improvement and water quality protection will increase profitability for growers.

Educational programs can provide growers with information so that they can make informed decisions to improve profitability and reduce the negative environmental impacts of horticultural cropping systems.

**2. Ultimate goal(s) of this Program**

The goal is to reduce negative environmental impacts and improve profitability for SC producers/growers. The program will encourage growers to adopt new agronomic production practices and alternative methods of nutrient and pest management.

In addition, research will develop new cropping practices, precision farming technologies, transgenic varieties and cropping systems that integrate the three.

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

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2010	10.0	0.0	7.4	0.0
2011	10.0	0.0	7.4	0.0
2012	11.0	0.0	7.4	0.0
2013	12.0	0.0	7.4	0.0
2014	15.0	0.0	7.4	0.0

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

**1. Activity for the Program**

Educational workshops will be conducted focused on programs and activities related to integrated crop management, integrated pest management, water resources, risk management, and marketing. Research activities will center on ways to increase disease and insect resistance levels, assess transgenic varieties, and improve management systems.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

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

**3. Description of targeted audience**

Producers, Extension and other agency personnel

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

**1. 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
2010	11500	2000	0	0
2011	12000	2000	0	0
2012	12000	2000	0	0
2013	12500	2000	0	0
2014	13000	10000	0	0

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

**Expected Patent Applications**

2010 :0                      2011 :1                      2012 :0                      2013 :0                      2014 :0

**3. Expected Peer Review Publications**

Year	Research Target	Extension Target	Total
2010	10	0	8
2011	12	1	12
2012	17	1	17
2013	15	1	15
2014	15	1	0

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

**1. Output Target**

- Disclosures

2010 :1                      2011 :1                      2012 :1                      2013 :1                      2014 :1

- Licenses

2010 :0                      2011 :0                      2012 :0                      2013 :0                      2014 :1

- Number of people completing educational workshops

2010 :8000                      2011 :8000                      2012 :8000                      2013 :8000                      2014 :8000

- New Variety Releases

2010 :2                      2011 :1                      2012 :3                      2013 :1                      2014 :2

**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	Number of acres affected by ICM programs
2	Number of people reporting increased knowledge
3	Number of new high yielding soybean cultivars with resistance to nematodes which will improve profitability for growers

**Outcome #1**

**1. Outcome Target**

Number of acres affected by ICM programs

**2. Outcome Type :** Change in Action Outcome Measure

**2010** 50000                      **2011** : 60000                      **2012** : 60000                      **2013** 60000                      **2014** :60000

**3. Associated Institute Type(s)**

•1862 Extension

**4. Associated Knowledge Area(s)**

- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems
- 601 - Economics of Agricultural Production and Farm Management

**Outcome #2**

**1. Outcome Target**

Number of people reporting increased knowledge

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010** 4100                      **2011** : 4200                      **2012** : 4210                      **2013** 5000                      **2014** :6000

**3. Associated Institute Type(s)**

•1862 Extension

**4. Associated Knowledge Area(s)**

- 205 - Plant Management Systems
- 216 - Integrated Pest Management Systems

**Outcome #3**

**1. Outcome Target**

Number of new high yielding soybean cultivars with resistance to nematodes which will improve profitability for growers

**2. Outcome Type :** Change in Condition Outcome Measure

**2010** 2                      **2011** : 1                      **2012** : 3                      **2013** :1                      **2014** :0

**3. Associated Institute Type(s)**

•1862 Research

**4. Associated Knowledge Area(s)**

- 212 - Pathogens and Nematodes Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

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

**1. External Factors which may affect Outcomes**

- Economy
- Natural Disasters (drought,weather extremes,etc.)
- Competing Programmatic Challenges
- Government Regulations
- Public Policy changes
- Populations changes (immigration,new cultural groupings,etc.)

**Description**

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

**1. Evaluation Studies Planned**

- Comparison between locales where the program operates and sites without program intervention
- Time series (multiple points before and after program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Before-After (before and after program)
- During (during program)
- Retrospective (post program)
- Comparisons between program participants (individuals,group,organizations) and non-participants
- After Only (post program)

**Description**

**2. Data Collection Methods**

- Mail
- Unstructured
- On-Site
- Structured
- Telephone
- Whole population
- Case Study
- Observation
- Sampling
- Tests

**Description**

**V(A). Planned Program (Summary)****Program #4****1. Name of the Planned Program**

Water Quality and Water Quantity

**2. Brief summary about Planned Program**

South Carolina's diverse natural resources including the coastline, rivers, woods and weather have attracted millions of people to visit or live here and to recreate in our natural areas. South Carolina landowners and public officials are not fully informed about how unique and valuable local natural resources are, yet ecotourism or nature based tourism has become the fastest growing section of the tourism industry. However, a significant barrier to development of these resources for recreation and tourism is poor water quality. Officials often are not aware of how to develop these opportunities, while at the same time minimizing the negative environmental impacts of such experiences, especially on water quality. This program seeks to: educate agricultural producers to increase acceptance of BMPs that protect and improve water quality, educate homeowners to increase acceptance of BMPs that prevent water pollution from the homestead, as through the Home-A-Syst and Coast-A-Syst programs, educate the public on how their different land-use practices impact the quality and quantity of water in urban streams, develop and deliver educational programming on stream restoration and water quality protection, develop participation in water quality volunteer groups, and train county volunteers to deliver Water Quality programming, present water quality and NPS pollution education for municipal and local government officials, design, demonstrate and promote the installation of riparian buffers and other environmentally appropriate plantings to protect water quality, promote environmentally sound natural resource recreation and tourism opportunities in South Carolina, and provide additional training to nature-based tourism professionals to ensure that the content and delivery of their educational programs is accurate and of high quality.

Equine Extension Specialists estimate that about 750,000 horses are used for trail riding in the Southern Piedmont states. Land managers throughout the nation agree that next to motorized trail traffic, horse traffic is the most difficult to manage for prevention of damage to forest ecosystems. The most fundamental management problems are those of controlling erosion and prevention of stream sedimentation and fecal contamination of surface waters.

The research program is focused on developing strategies for economically viable land use to coexist with good water quality. Research will characterize processes that control contaminant movement, contaminant bio-availability and toxicity, and contaminant degradation and assimilation by natural biogeochemical processes. Research on toxicity of metals and pesticides information will assist environmental regulators to develop site- specific water quality criterion for metals in surface waters.

Research will develop, improve and evaluate watershed models and other approaches for TMDL development and implementation, assess potential economic benefits and costs and equity associated with TMDL implementation at the watershed and individual landowner scale, and assess the potential ecological benefits of TMDL implementation at the watershed level.

Wetland and watershed management to improve water quality, wetland and aquatic wildlife habitat is the focus of this project. Increased knowledge about our wetland ecosystems, mankind's impact on water quality and what we can do to ensure proper water quality are important topics included in this program. Additionally, such a program increases the public's understanding and awareness of natural resource management, and builds a network of natural resource ambassadors.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)****1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
111	Conservation and Efficient Use of Water	30%	30%	30%	30%
112	Watershed Protection and Management	20%	20%	20%	20%
131	Alternative Uses of Land	20%	20%	20%	20%
133	Pollution Prevention and Mitigation	20%	20%	20%	20%
134	Outdoor Recreation	10%	10%	10%	10%
	<b>Total</b>	100%	100%	100%	100%

**V(C). Planned Program (Situation and Scope)****1. Situation and priorities**

Changes in land-use patterns are impacting the state's resources in unplanned ways, such as the changes in water quality and quantity. Future wise use of the state's natural resources will require public education of the impacts that current and future land uses have on natural resources.

**2. Scope of the Program**

- In-State Research
- In-State Extension
- Multistate Research

**V(D). Planned Program (Assumptions and Goals)****1. Assumptions made for the Program**

A focus on improving and evaluating watershed models will assist policy makers in developing strategies for economically viable land use to coexist with good water quality.

Education about the impacts of land use can result in informed consumers who use strategies to reduce the negative impacts on water and other natural resources.

**2. Ultimate goal(s) of this Program**

The goal of this program is to develop models which will provide a scientific basis for decisions on long term water quality issues in South Carolina and to teach Best Management Practices (BMP's) of natural resources at all levels of land ownership to minimize the negative environmental impacts on water.

**V(E). Planned Program (Inputs)****1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2010	4.5	0.0	4.8	0.0
2011	4.5	0.0	4.8	0.0
2012	5.0	0.0	4.8	0.0
2013	5.0	0.0	4.8	0.0
2014	7.0	0.0	4.8	0.0

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

**1. Activity for the Program**

1. Educate agriculture producers to increase acceptance of BMPs that protect and improve water quality.
2. Educate homeowners to increase acceptance of BMPs that prevent water pollution from the homestead, as through the Home-A-Syst and Coast-A-Syst programs.
3. Educate the public on how their different land-use practices impact the quality and quantity of water in urban streams.
4. Develop and deliver educational programming on stream restoration and water quality protection.
5. Develop participation in water quality volunteer groups, and train county volunteers to deliver WQ programming
6. Present water quality and NPS pollution education for municipal and local government officials, as using Project NEMO.
7. Design, demonstrate and promote the installation of riparian buffers and other environmentally appropriate plantings to protect water quality.
8. Promote environmentally sound natural resource recreation and tourism opportunities in South Carolina.
9. Conduct field research focused on toxicity of metals and pesticides and on TMDL watershed modeling.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

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

**3. Description of targeted audience**

Farm and forest landowners, Extension agents, and administrators, natural resource professionals, Land management agency personnel, and user groups, nature-based tourism operators/industry,, South Carolina citizens, tourists, children in school, after-school, summer and 4-H programs, agents and volunteers, urban, suburban and rural residents, farmers, ranchers, poultry and swine producers, foresters urban agents, agency personnel, urban planners and land owners/managers, municipal officials, and local community groups statewide, managers, government officials, and recreation and tourism operators

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

**1. 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
2010	7500	3000	0	0
2011	8000	3500	0	0
2012	8000	3510	0	0
2013	8000	3520	0	0
2014	8000	10000	0	0

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

**Expected Patent Applications**

2010 :3                      2011 :2                      2012 :3                      2013 :3                      2014 :2

**3. Expected Peer Review Publications**

Year	Research Target	Extension Target	Total
2010	12	0	10
2011	16	0	12
2012	18	0	14
2013	22	0	14
2014	20	0	0

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

**1. Output Target**

- Disclosures

2010 3                      2011 4                      2012 4                      2013 3                      2014 3

- Licenses

2010 1                      2011 0                      2012 0                      2013 1                      2014 0

- Number of people completing educational workshops

2010 4400                      2011 4500                      2012 4500                      2013 5000                      2014 6000

**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	Number of people gaining knowledge
2	Number of people using practices learned
3	Policies for economically viable land use preserving water quality
4	Strategies for TMDL development and implementation at the watershed level

**Outcome #1**

**1. Outcome Target**

Number of people gaining knowledge

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010** 3400                      **2011** : 3500                      **2012** : 3500                      **2013** 3500                      **2014** :4000

**3. Associated Institute Type(s)**

•1862 Extension

**4. Associated Knowledge Area(s)**

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 134 - Outdoor Recreation

**Outcome #2**

**1. Outcome Target**

Number of people using practices learned

**2. Outcome Type :** Change in Action Outcome Measure

**2010** 2000                      **2011** : 2100                      **2012** : 2110                      **2013** 2200                      **2014** :2200

**3. Associated Institute Type(s)**

•1862 Extension

**4. Associated Knowledge Area(s)**

- 112 - Watershed Protection and Management
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation
- 134 - Outdoor Recreation

**Outcome #3**

**1. Outcome Target**

Policies for economically viable land use preserving water quality

**2. Outcome Type :** Change in Condition Outcome Measure

**2010** 3                              **2011** : 2                              **2012** : 3                              **2013** 1                              **2014** :0

**3. Associated Institute Type(s)**

•1862 Research

**4. Associated Knowledge Area(s)**

- 112 - Watershed Protection and Management
- 131 - Alternative Uses of Land
- 133 - Pollution Prevention and Mitigation

**Outcome #4**

**1. Outcome Target**

Strategies for TMDL development and implementation at the watershed level

**2. Outcome Type :** Change in Condition Outcome Measure

**2010 :** 2                      **2011 :** 3                      **2012 :** 4                      **2013 :** 1                      **2014 :** 0

**3. Associated Institute Type(s)**

- 1862 Research

**4. Associated Knowledge Area(s)**

- 111 - Conservation and Efficient Use of Water
- 112 - Watershed Protection and Management
- 133 - Pollution Prevention and Mitigation

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

**1. External Factors which may affect Outcomes**

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

**Description**

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

**1. Evaluation Studies Planned**

- Retrospective (post program)
- Comparisons between program participants (individuals,group,organizations) and non-participants
- Time series (multiple points before and after program)
- After Only (post program)
- Before-After (before and after program)
- During (during program)
- Comparison between locales where the program operates and sites without program intervention
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

**Description**

**2. Data Collection Methods**

- Unstructured
- Sampling
- Telephone
- On-Site
- Whole population
- Mail
- Case Study
- Structured
- Observation

**Description**

**V(A). Planned Program (Summary)****Program #5****1. Name of the Planned Program**

Biotechnology

**2. Brief summary about Planned Program**

The agricultural biotechnology program has two primary components, one focused on animals, primarily dairy cattle, and one on plants, particularly soybeans and peaches.

Animal component: Mammary development is critical to profitability in dairy, beef, swine, and lamb operations because milk production controls growth of offspring and profitability in dairy operations. The purpose of this project is to learn more about a specific population of cells in the mammary gland that are likely critical in controlling mammary development. Assuming we can positively identify and manipulate bovine mammary stem cells, there is great potential to improve profitability for dairy and beef producers. There may be important corollaries for human medicine if we can unravel the apparently genetic basis for resistance to mammary adenoma amongst ruminants. Animal genome research continues to facilitate integration of genomic, transcriptional, proteomic and metabolomic approaches toward a better understanding of biological mechanisms underlying economically important traits.

Plant Component: Legumes are unique among crop plants in that they can grow in the absence of soil nitrogen. While such growth is dependent on the presence of compatible species of Sinorhizobia in the soil, the symbiosis that is set up between the plant and the bacterium allows legumes to exploit niches where other plants cannot grow. It makes legumes particularly useful for agriculture. The ability of these plants to utilize nitrogen fixed from the atmosphere by the bacteria living within specialized root structures (nodules) makes legumes ideally suited to soils where nitrogen is limiting. Fifteen percent of the world's arable land is planted with legumes and they provide 33% of humankind's nutritional nitrogen needs. Because so much of the world's food supply relies on legumes, the outcomes of legume research can have broad implications. The work has potential impact in agricultural biotechnology by broadening our knowledge base, especially with regard to genes involved in nodulation. A major concern in South Carolina is the soybean cyst nematode, which is a devastating pest of soybeans. Resistance to many soybean pests has been found in primitive germplasm. This component will exploit genome of the primitive germplasm with broad resistance to soybean cyst nematode to identify how the plant deals swiftly with stress, and to devise more lasting protection against the nematode in modern cultivars through genetic engineering. Work is also underway to determine the inheritance of genetic traits that may be utilized in the breeding program to increase yield and/or quality of soybeans. Commercial peach growers in South Carolina and in the southeastern United States suffer significant production losses due to fungal diseases, in particular Armillaria root rot and Brown rot disease. This element of the plant component addresses these two key disease problems and tries to find management options that are effective, affordable, and easy to implement.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)****1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	25%	25%	25%	25%
202	Plant Genetic Resources and Biodiversity	25%	25%	25%	25%
303	Genetic Improvement of Animals	20%	20%	20%	20%
304	Animal Genome	20%	20%	20%	20%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	10%	10%	10%	10%
	<b>Total</b>	100%	100%	100%	100%

**V(C). Planned Program (Situation and Scope)****1. Situation and priorities**

Agricultural biotechnology is a rapidly expanding field with potential benefits to consumers, farmers and industry.

**2. Scope of the Program**

- In-State Research
- Multistate Research

**V(D). Planned Program (Assumptions and Goals)****1. Assumptions made for the Program**

Research in animal and plant biotechnology will facilitate a better understanding of biological mechanisms underlying economically important traits in livestock, and devise new approaches to insect pests in plants.

**2. Ultimate goal(s) of this Program**

Increase productivity and profitability of farmers generate new technologies for business development and expansion and improve the quality of life for the citizens of the state

**V(E). Planned Program (Inputs)****1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2010	0.0	0.0	8.1	0.0
2011	0.0	0.0	8.1	0.0
2012	0.0	0.0	8.1	0.0
2013	0.0	0.0	8.1	0.0
2014	0.0	0.0	8.1	0.0

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

**1. Activity for the Program**

Research in mammary development to increase profitability in dairy, beef, swine and lamb operations. Research on legumes, especially with regard to genes involved in nodulation, and research on resistance to soybean pests in primitive germplasm for application in modern varieties.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>Workshop</li> </ul>	<ul style="list-style-type: none"> <li>Web sites</li> </ul>

**3. Description of targeted audience**

Agricultural biotechnology research has a grower and industry focus. New approaches to improving crop and animal lines are one result of biotechnology research and the ability to better deal with a variety of pests which negatively impact productivity is another.

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

**1. 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
2010	0	0	0	0
2011	0	0	0	0
2012	0	0	0	0
2013	0	0	0	0
2014	0	0	0	0

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

**Expected Patent Applications**

2010 :4                      2011 :3                      2012 :3                      2013 :3                      2014 :3

**3. Expected Peer Review Publications**

Year	Research Target	Extension Target	Total
2010	25	0	8
2011	25	0	12
2012	28	0	18
2013	30	0	20
2014	30	0	0

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

**1. Output Target**

- Disclosures

2010 :6                      2011 :6                      2012 :8                      2013 :6                      2014 :6

- Licenses

2010 :1                      2011 :1                      2012 :0                      2013 :1                      2014 :1

**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	Development of expanded applications of legumes in nitrogen poor environments
2	Improved profitability for beef and dairy producers

**Outcome #1****1. Outcome Target**

Development of expanded applications of legumes in nitrogen poor environments

**2. Outcome Type :** Change in Condition Outcome Measure

<b>2010</b> 0	<b>2011</b> : 0	<b>2012</b> : 0	<b>2013</b> 0	<b>2014</b> : 0
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**3. Associated Institute Type(s)**

•1862 Research

**4. Associated Knowledge Area(s)**

- 201 - Plant Genome, Genetics, and Genetic Mechanisms
- 202 - Plant Genetic Resources and Biodiversity

**Outcome #2****1. Outcome Target**

Improved profitability for beef and dairy producers

**2. Outcome Type :** Change in Condition Outcome Measure

<b>2010</b> 0	<b>2011</b> : 0	<b>2012</b> : 0	<b>2013</b> 0	<b>2014</b> : 0
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**3. Associated Institute Type(s)**

•1862 Research

**4. Associated Knowledge Area(s)**

- 303 - Genetic Improvement of Animals
- 304 - Animal Genome
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**V(J). Planned Program (External Factors)****1. External Factors which may affect Outcomes**

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

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

- Before-After (before and after program)
- During (during program)
- Comparison between locales where the program operates and sites without program intervention
- After Only (post program)
- Time series (multiple points before and after program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Retrospective (post program)

## Description

### 2. Data Collection Methods

- Telephone
- Structured
- Unstructured
- On-Site
- Case Study
- Mail
- Whole population
- Observation
- Sampling

## Description

**V(A). Planned Program (Summary)****Program #6****1. Name of the Planned Program**

Food Safety and Nutrition

**2. Brief summary about Planned Program**

Nutrition education programs for general audiences will focus on the topic of preventing chronic disease through eating according to the MyPyramid and the Dietary Guidelines for Americans. EFNEP is a federally funded nutrition education program for children, youth and families with limited resources and is administratively supported by the Clemson and South Carolina State University Extension Services. EFNEP helps persons develop the knowledge, skills, attitudes, and behavior needed to improve their diet. Families learn to make informed choices about low-cost, nutritious foods; to better manage family finances; and to become more self-sufficient. Families and youth are taught individually taught or taught in small groups by Clemson EFNEP nutrition educators. Paraprofessional instructors are trained in basic nutrition and food-related topics by Extension nutrition specialists from both institutions. Many EFNEP nutrition educators are hired from the community in which they work. EFNEP currently is located in twenty six counties in South Carolina. The Food Safety program will feature the Serving Safe Food Curriculum from ServSafe. Agents certified as ServSafe Food Protection Managers will teach proper cleaning, and sanitizing, safe handling of food, correct temperatures, proper personal hygiene, as well as other aspects of food safety. Agents will assist entrepreneurs and food businesses with food safety issues, teach food service managers via train-the-trainer programs and assist managers in training their employees.

Research will focus on developing nanotechnology applications for food safety and quality, optimizing antimicrobial and antioxidant packaging films for foods, and developing biopolymer film applications for foods. Research will seek out new antimicrobials that can be used to control harmful microbes in foods and to look for DNA sequences that can be used to construct genetic transfer systems for gene delivery. Research will review the historical patterns in the formulation and implementation of U.S. nutrition policies in South Carolina to address the long-term problems in implementation of federal nutrition guidelines in the state. Research will assess the contribution of ceftiofur treatment of food animals to the acquisition and dissemination of ceftriaxone-resistant Salmonella, and the impact of antibiotic use on the microbiological safety of food. Work will continue to develop the bacteriocin jensenin P for use as a topical anti-acne agent.

In addition, research will focus on developing a rapid method to accurately screen fruits and vegetables for the presence of organochlorine and organophosphorous pesticides, developing new diagnostic procedures for animal pathogens, especially those with recognized or predicted zoonotic potential, and on metabolic profiling in an attempt to manage, treat and/or diagnose infections. Establishment of a nutrition Extension Service activity within limited-resource communities to promote lifestyle behaviors, which may prevent the development of chronic diseases. A Center of Excellence in Health Disparity and Outreach and Support will be developed to establish a degree program at the undergraduate level in public health. Research will also provide help in minimizing risks of harmful pathogens in the food supply.

Research will be conducted to address the difficulties that have been encountered in transmitting federal nutrition guidelines to the South Carolina public, since the initiation of federal nutrition guidelines. Patterns will be assessed through an analysis of diaries, commentaries, letters and cookbooks. For the systematic, qualitative analysis of the sources, the use of an electronic computer cross-referencing of data will be conducted.

**3. Program existence :** Intermediate (One to five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)****1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
503	Quality Maintenance in Storing and Marketing Food Products	5%	5%	5%	5%
703	Nutrition Education and Behavior	30%	30%	30%	30%
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	30%	30%	30%	30%
723	Hazards to Human Health and Safety	30%	30%	30%	30%
724	Healthy Lifestyle	5%	5%	5%	5%
	<b>Total</b>	100%	100%	100%	100%

### V(C). Planned Program (Situation and Scope)

#### 1. Situation and priorities

##### Food Safety

According to public health and food safety experts, 76 million illnesses in this country can be traced to food-borne bacteria each year. Moreover, the Food and Drug Administration estimates that two to three percent of all food-borne illnesses lead to secondary long-term illnesses. Food Marketing Institute research shows that consumers know that food safety is important and know that they personally should observe sound food-handling practices. However, it also shows either that they do not fully comprehend some of the most important messages or they fail to use food safety measures. For example, 85% of consumers understand the importance of washing hands vigorously when handling food, but only 65% always do so. The need to constantly communicate food safety messages is underlined by continued changes in food safety recommendations for both consumers and the food service industry.

Travel and tourism and the related retail food service industry is South Carolina's largest economic driver. Training retail managers and employees in safe food handling practices is key to maintaining a healthy tourism experience and to repeat visitors.

##### Nutrition

Poor nutrition and physical inactivity are primary risk factors in the development of obesity, heart disease, some cancers, hypertension and diabetes. The number of children who have high blood lipids, have clinically diagnosed hypertension and have developed Type II diabetes (typically seen in adults) is sharply on the rise. All of these are secondary to obesity, poor nutrition and physical inactivity. Childhood obesity is a serious health issue, with the prevalence reaching epidemic proportions and more than doubling in the last three decades, with even higher rates among subpopulations of minority and economically disadvantaged children and adolescents.

The economic impact of obesity and associated chronic disease has been estimated to be approximately \$1 billion in South Carolina alone and \$100 billion nationwide. Obesity in children and adolescents has been associated with several chronic disease states including: diabetes, asthma, sleep apnea, and gall bladder disease. Several studies document that prevalence of type II diabetes is increasing among children and adolescents. Children who are overweight are at increased risk of becoming overweight or obese adults. Nationally, the prevalence of adult obesity increased 75% between 1991 and 2000 (from 22.9% to 30.5%). Adult obesity is an important risk factor for several chronic disease conditions. Approximately 14% of the South Carolina population is low income and is at higher risk for food insecurity obesity. The causes of obesity are complex and include genetics, lack of physical activity, and high-fat, energy-dense foods, which are readily accessible, inexpensive, heavily advertised, and palatable. Furthermore, individuals who are overweight may not eat more than normal weight individuals but instead, may have a positive energy balance due to low energy output.

A recent review of the dietary intake, food resource management practices, nutrition practices and food safety practices of parents in South Carolina reveals that only 14% demonstrated acceptable food resource management practices;

only 9% demonstrated acceptable nutrition practices; only 46% demonstrated acceptable food safety practices; only 27.4% consume an adequate number of servings of breads and cereals; only 20.8% consume an adequate number of servings of fruit; only 20.8% consume an adequate number of servings of vegetables; only 10.1% consume an adequate number of servings of dairy; and, only 2.4% consume a food pattern with a 6-2-3-2-2 pattern of intake from the food groups. Only 12% of Americans eat a healthy diet consistent with federal nutrition recommendations. The typical American diet is too high in saturated fat, salt, and refined sugar and too low in fruits, vegetables, whole grains, calcium, and fiber. Only 2% of school-aged children meet the Food Guide Pyramid serving recommendations for all 5 major food groups, and not more than 30% eat the recommended amount from any 1 of the 5 major food groups. There is a need to increase food safety through improved processing and packaging, screen vegetables for pesticides and develop new diagnostic procedures for animal pathogens.

## 2. Scope of the Program

- In-State Research
- Multistate Research
- In-State Extension

## V(D). Planned Program (Assumptions and Goals)

### 1. Assumptions made for the Program

Delivery of nutrition and food safety information via volunteers and train-the-trainer efforts is an important extender of resources.

Teaching children skills to maintain healthy dietary habits and active lifestyles helps prevent obesity not only in youth, but also in adult life. However, many of the interventions aimed at preventing obesity in children and adults have not been particularly successful. There is a need to develop and implement innovative interventions designed to prevent childhood obesity.

While income is one resource that correlates with higher prevalence of obesity, other resources (when limited) also impact obesity. Many families have limited time for food purchasing and preparation; limited access and availability to foods; limited food preparation skills; limited knowledge of proper nutrition; and have a limited budget.

It is well established that weight status is partly due to genetic influences; however, the family (parental feeding practices, food purchasing and preparation practices), and school/childcare environments can also exert strong influence on children's food availability, eating behaviors, and physical activity levels which may impact children's weight status. However, many adults have limited food purchasing and preparation skills, which reduces the variety of foods consumed and leads to a low intake of certain foods that contribute to a healthy diet. Food purchasing and preparation skills are needed to prepare low-cost, nutritious meals that meet current dietary recommendations.

Research into films, antimicrobials and nanotechnology applications will produce results that will enhance food safety in South Carolina, as will the ability to screen for pesticides on vegetables and detect animal pathogens.

### 2. Ultimate goal(s) of this Program

The overall nutrition goal is to reduce the prevalence of overweight and obesity and the associated health risks and to promote healthy lifestyles of South Carolinians and to improve the quality and safety of food for citizens of South Carolina. A multi-faceted approach will be used, focusing on the development and promotion of lifelong healthy eating and physical activity behaviors for children, youth, and families and on working with partners to change the nutrition and fitness environment.

## V(E). Planned Program (Inputs)

### 1. Estimated Number of professional FTE/SYs to be budgeted for this Program

Year	Extension		Research	
	1862	1890	1862	1890
2010	10.0	14.0	2.1	4.0
2011	10.0	15.0	2.1	5.0
2012	10.0	17.0	2.1	5.0
2013	10.0	17.0	2.1	5.0
2014	10.0	0.0	2.1	0.0

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

**1. Activity for the Program**

Nutrition education will center on the Food Guide Pyramid and the Dietary Guidelines for Healthy Americans. Special focus will be given to programming in the prevention of childhood obesity, increasing physical activity in all ages, and the development of food preparation skills that fit current nutritional needs and lifestyle. Safe handling of food will be taught to handlers in the food service industry and the general public. Commercial food processors will be targeted in an effort to improve commercial food processing efficiencies and effectiveness/develop new markets/improve commercial handling, processing, preservation and packaging to provide safe and high quality foods. Attention will be given to providing consumers with scientifically based, reasonable nutrition and food safety information via the media. Food-borne illnesses will be defined and conditions discussed that encourage bacteria growth. Most common food-borne pathogens, additives, preservatives and basic kitchen safety techniques will be taught. The following activities will be conducted:

Communities will form coalitions that focus on improving the nutritional health and fitness of their citizens.

Participants will make healthy food choices after participating in Extension food/nutrition programs.

Participants will develop skills in procuring of food for good health.

Participants will demonstrate skills in preparing food; emphasizing healthy preparation techniques.

Participants will increase knowledge and skills for the safe handling of food.

Managers and supervisors will be certified to train food handlers in safe food handling techniques.

Food handlers will practice safe food handling techniques.

Volunteer food handlers at temporary events will increase their knowledge in safe food handling.

Regulatory compliance will be promoted

Specialists will assist in the development of new food businesses.

Public understanding of technology, with an emphasis upon food biotechnology will increase.

Media outlets will utilize Extension food safety and nutrition resources.

Outlets for publication will distribute or sell Extension food safety and nutrition resources.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

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

**3. Description of targeted audience**

Community leaders, agencies, policy makers, general public, EFNEP - limited resource families, food service managers, supervisors, food handlers, producers, commercial food handlers, processing and packaging industry, entrepreneurs seeking to start food businesses or improve existing food business, media and other marketing contacts, and publication outlets – doctors' offices and grocers.

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

**1. 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
2010	30300	2000	10000	0
2011	30400	2100	10000	0
2012	30400	2100	10000	0
2013	30500	2100	11000	0
2014	40000	10000	11000	0

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

**Expected Patent Applications**

2010 :0                      2011 :0                      2012 : 1                      2013 :0                      2014 :0

**3. Expected Peer Review Publications**

Year	Research Target	Extension Target	Total
2010	6	0	6
2011	6	1	6
2012	8	1	8
2013	8	1	8
2014	10	1	0

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

**1. Output Target**

- Licenses

2010 0                      2011 0                      2012 :0                      2013 0                      2014 0

- Disclosures

2010 1                      2011 1                      2012 :0                      2013 1                      2014 0

- Number of press kits distributed

2010 55                      2011 65                      2012 :65                      2013 65                      2014 70

- Number of people completing educational workshops

2010 22500                      2011 25000                      2012 :25000                      2013 27000                      2014 30000

**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	Number of participants reporting increase knowledge in safe food handling and nutrition
2	Number of managers/supervisors/food handlers completing educational program and receiving a course certificate
3	Number of coalitions formed (partners, public/private, academic)
4	Number of participants reached with food safety information by volunteers who participated in an Extension training program
5	Number of new or improved food products entering the market as a result of adopting recommended practices
6	Number of people reached through media outlets that utilize Extension food safety, food biotechnology and nutrition resources

**Outcome #1**

**1. Outcome Target**

Number of participants reporting increase knowledge in safe food handling and nutrition

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010 :**13000                      **2011 :** 15000                      **2012 :** 15000                      **2013 :**17000                      **2014 :**20000

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension
- 1890 Research

**4. Associated Knowledge Area(s)**

- 503 - Quality Maintenance in Storing and Marketing Food Products
- 703 - Nutrition Education and Behavior
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 723 - Hazards to Human Health and Safety
- 724 - Healthy Lifestyle

**Outcome #2**

**1. Outcome Target**

Number of managers/supervisors/food handlers completing educational program and receiving a course certificate

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010 :**650                      **2011 :** 700                      **2012 :** 700                      **2013 :** 700                      **2014 :** 700

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 703 - Nutrition Education and Behavior
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 723 - Hazards to Human Health and Safety

**Outcome #3**

**1. Outcome Target**

Number of coalitions formed (partners, public/private, academic)

**2. Outcome Type :** Change in Action Outcome Measure

**2010 :** 5                      **2011 :** 5                      **2012 :** 6                      **2013 :** 6                      **2014 :** 7

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 703 - Nutrition Education and Behavior
- 723 - Hazards to Human Health and Safety

**Outcome #4****1. Outcome Target**

Number of participants reached with food safety information by volunteers who participated in an Extension training program

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010** 275                      **2011** : 300                      **2012** : 300                      **2013** 500                      **2014** :600

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 503 - Quality Maintenance in Storing and Marketing Food Products
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 723 - Hazards to Human Health and Safety

**Outcome #5****1. Outcome Target**

Number of new or improved food products entering the market as a result of adopting recommended practices

**2. Outcome Type :** Change in Condition Outcome Measure

**2010** :15                      **2011** : 16                      **2012** : 17                      **2013** :18                      **2014** :19

**3. Associated Institute Type(s)**

- 1862 Extension

**4. Associated Knowledge Area(s)**

- 503 - Quality Maintenance in Storing and Marketing Food Products

**Outcome #6****1. Outcome Target**

Number of people reached through media outlets that utilize Extension food safety, food biotechnology and nutrition resources

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010** :45000                      **2011** : 45000                      **2012** : 45000                      **2013** 52000                      **2014** :60000

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 503 - Quality Maintenance in Storing and Marketing Food Products
- 703 - Nutrition Education and Behavior
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 723 - Hazards to Human Health and Safety
- 724 - Healthy Lifestyle

**V(J). Planned Program (External Factors)****1. External Factors which may affect Outcomes**

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

**Description**

Our goal is for county faculty (currently estimated at 8 FTE's) to be supported entirely through county monies, generated funds, gifts and/or grants and contracts by 2010 and for new food safety and nutrition county faculty to be added through that same means. Changes in public policy directed toward obesity, nutrition and fitness, and food safety issues will impact availability of funding for community-based translational research and outreach in food safety and nutrition and may necessitate additional activities in any one area. For instance, South Carolina has required every school to implement a program in nutrition and fitness.

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

- Case Study
- During (during program)
- After Only (post program)
- Comparison between locales where the program operates and sites without program intervention
- Comparisons between program participants (individuals,group,organizations) and non-participants
- Before-After (before and after program)
- Retrospective (post program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

**Description**

CUMIS evaluations/reporting; other methods as funding is secured to support them. Standardized tests for food safety trainings.

**2. Data Collection Methods**

- Mail
- On-Site
- Sampling
- Observation
- Whole population
- Tests
- Case Study
- Structured
- Telephone
- Unstructured

**Description**

CUMIS and others to be provided later

**V(A). Planned Program (Summary)****Program #7****1. Name of the Planned Program**

Community, Leadership, and Economic Development

**2. Brief summary about Planned Program**

Research will deal with the emerging opportunities and threats to the economic structure of rural markets, with a focus on electronic commerce, financial liberalization and health care. Spatial mismatch areas and remedies in the rural south and the role that new technology plays in local labor markets and quantify the spatial dynamics of labor markets will be assessed.

Companion research will study Chapter 13 and its Chapter 7 derivative bankruptcy filings in South Carolina.

Research will determine what types of development strategies are available in South Carolina, who benefits, the ingredients necessary for successful business development and the development capacity of local governments. There will also be an assessment of parks and recreation development and research on the barriers to entry faced by agricultural business owners in South Carolina in their decision to consider agritourism as a diversification strategy. The program will assess the impacts of welfare reform on individual, family and community well-being in the rural south and identify the linkages between changes in rural welfare caseloads and the performance of regional economies. Research will build on the growing literature about how to better prepare pre-service teachers to successfully teach low achieving students in rural schools, an outcome study relative to adolescent violence and acting out following a college student mentoring in fifth and sixth grades. and the experimental application and development of the etymological word learning system. The program will also feature an assessment of the migration and community vitality in South Carolina's Hispanic populations and an assessment of existing social and Extension educational programs for the Hispanic population in the state, increased youth and family developing programming through the state within limited-resource communities, specifically, establishment of a data base for expanding research in youth and family development and development of collaborations and partnerships with other state agencies.

Community Leadership Development encompasses leadership, team building, and consensus development activities. The CLED program offers community leadership development training, facilitation of strategic planning for economic development, public issues education, youth leadership, and serves as a collaborative agency with other leadership program sponsors. Board training for public officials and nonprofit organizations are offered at the community and state-wide level. Leadership and citizenship development also includes youth, youth-at-risk, and limited resource residents in inner-city and rural settings. The South Carolina Community Development Collaborative is partnership of community, municipal and government organizations partnering to leverage their knowledge and resources to promote a holistic approach to sustainable community development. Within the collaborative, organizations identify opportunities for partnership, funding and learning to increase individual organization and member capacity in assisting communities. Through the sharing of assets, the members serve as a "resource bank" to meet community needs. The CLED program will also promote community enhancement that is linked to community image, sustainable economic development, and improved quality of life. The Clemson Institute for Economic and Community Development provides educational, policy formation, and service function as a collaborative and facilitative entity to extension educators, citizens, and others. A skilled workforce has been identified as one of the key elements in attracting new investment that leads to better paying sustainable jobs. In cooperation with the South Carolina Commission of Employment Security and local Workforce Investment Boards, the needs for different workforce skills will be documented and matched to characteristics of the local workforce. The Brownfields Redevelopment program will serve to remediate abandoned, idle or underused industrial or commercial property where expansion or redevelopment is complicated by real or perceived environmental contamination.

The Northeastern Corridor of Orangeburg Community Development Corporation (NCO CDC) is funded from the Department of Housing and Urban Development (HUD) under its Historically Black Colleges and universities (HBCU) grant. The program is designed to revitalize the communities that surround HBCU's. Meetings and forums were held to determine what initiatives residents felt were needed to make their communities viable. Affordable housing was considered the most critical need as well as safe and decent housing, youth programs, elimination of drugs and other illicit activities and economic development. Based on the needs identified, the agency partnered with SC Housing Finance and Development Authority, US Rural Development, Orangeburg County and other civic organizations to provide home buyer education, home rehabilitation and homeownership opportunities.

The CD Certificate Program is designed in partnership with Benedict College School of Community Development and the South Carolina Association of Community Development Corporations Incorporated to provide practitioners in local communities with the knowledge, skills and abilities to successfully design, develop and establish successful economic and community development initiatives in their local communities. The program is designed to provide practitioners competencies in

the following areas: community needs assessment and asset mapping, leadership models and roles, building effective partnerships, developing effective advancement programs, building effective political relationships, establishing effective public/media/community relations, and designing and developing effective community development projects.

3. Program existence : Mature (More than five years)

4. Program duration : Long-Term (More than five years)

5. Expending formula funds or state-matching funds : Yes

6. Expending other than formula funds or state-matching funds : Yes

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

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
608	Community Resource Planning and Development	15%	15%	15%	15%
609	Economic Theory and Methods	10%	10%	10%	10%
610	Domestic Policy Analysis	15%	15%	15%	15%
801	Individual and Family Resource Management	15%	15%	15%	15%
802	Human Development and Family Well-Being	15%	15%	15%	15%
803	Sociological and Technological Change Affecting Individuals, Families and Communities	15%	15%	15%	15%
806	Youth Development	15%	15%	15%	15%
<b>Total</b>		100%	100%	100%	100%

**V(C). Planned Program (Situation and Scope)**

**1. Situation and priorities**

South Carolina's rural economy continues to be impacted by the loss of textile employment. Urban growth and sprawl continues to draw on the rural labor force. The infrastructure needs of rural communities, to include education, continue to grow as the tax base weakens.

The state of South Carolina has undergone significant job losses from plant closings and relocation of textile manufacturing to plants outside the US. The CLED program addresses the need for increased leadership training and development in South Carolina's rural, suburban, city, and transitional areas. Transitional areas include counties and communities at the fringes of metropolitan sprawl or changing neighborhoods. These target areas often lack progressive leadership that looks beyond local political boundaries. Projects such as the Palmetto Leadership program and Public Issues Education are designed to assist leaders with local planning to find new revenue sources in rural counties that have a low tax base and relatively few income producing resources. Extension educational programs foster teamwork, planning, and regionalism to address effectively the

locale’s economic and quality of life concerns. The community leadership program provides a facilitated and constructive forum where conflicting interests and policies can be addressed through the action plans of established and emerging leaders. These programs also help create the next generation of informed leaders.

Revitalize affordable housing, safe and decent housing, youth programs, elimination of drugs and other illicit activities and economic development in communities where needed.

**2. Scope of the Program**

- Multistate Research
- In-State Extension
- In-State Research

**V(D). Planned Program (Assumptions and Goals)**

**1. Assumptions made for the Program**

- The development of targeted industry strategies, community leadership development and overall strategies for economic development can spark entrepreneurial innovation and attract jobs.
- Training programs can help build leadership skills of local citizens.
- Trained leaders can promote informed change that produces community-friendly public policies.
- A properly trained population can enhance workforce preparedness and promote economic development in communities.
- Engaging communities through collaborative efforts and partnership increases buy-in, and significantly increases the potential for program and community success.
- The power to change communities rest within the communities.
- Communities are best able to define what success looks like.

**2. Ultimate goal(s) of this Program**

Strengthening the economic competitiveness of rural areas, improving the business climate and creating economic opportunities and improving the quality of life for rural residents.

The program will provide training for citizens to enhance leadership, communication, team building and strategic planning efforts. It will also provide communities with tools to develop a vision for transformation to a future state of increased livability, prosperity and sustainability.

Revitalizing communities and providing affordable housing, safe and decent housing, youth programs, eliminating drugs and other illicit activities in communities, as well as economic development.

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

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2010	14.0	8.0	5.4	9.0
2011	14.0	10.0	5.4	10.0
2012	14.0	13.0	5.4	12.0
2013	14.0	13.0	5.4	12.0
2014	15.0	0.0	5.4	0.0

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

**1. Activity for the Program**

Research projects will be conducted. Joint activities with Cooperative Extension will be implemented, publications will be written and partnerships will be established.

1. Conduct leadership programs and workshops in counties or municipalities, teaching facilitation skills and best practices of conflict resolution to be used in public meetings and public forums
2. Communicate leadership principles through printed materials
3. Collaborate with organizations to offer leadership and team building programs
4. Promote participation in task forces/committees that have programmed outcomes
5. Offer board development training and organizational capacity building to nonprofit organizations annually
6. Promote the participation of youth and adults in Intergenerational Service Learning or Community Youth Development activities and in Children, Youth and Families At Risk Extension programming. (CYFAR)
7. Convey community and regional economic impact assessment data to business leaders and economic development organizations
8. Provide local leaders with local socio-economic trend and pattern data to support local economic development strategic planning efforts
9. Review federal and state legislation and offer critiques to advance understanding among agency representatives and association members
10. Prepare materials for public distribution in print or through electronic means (video, television, radio, media) that promote understanding of public issues
11. Engage citizens in community promotion projects annually
12. Facilitate the work of task forces/groups that formulate action plans and policies
13. Communicate community improvement accomplishments through news releases, fact sheets, reports, articles, and newsletters
14. Establish a Brownfields Community Redevelopment Center
15. Address issues associated with youth through a Youth Empowerment/Leadership program
16. Increase statewide collaborations by continuing to share information with potential partners and engaging them in community projects
17. Provide leadership in cultural and environmental stewardship
18. Convene practitioners and researchers in an interactive environment that results in innovative, sustainable solutions
19. Foster research, collaborations, capacity building and leadership for sustainable community and economic development
20. Conduct design/master plan Charrettes in all of the states distressed counties (The Charrette is a tool that allows CIECD in a collaborative manner to interact with communities in designing a master plan of transformative change. The essential elements of the Charrette are the use of experts in areas of landscape design, community design, visioning and architecture with vital input from the community to create the transformative plan or change)
21. Projections will be made for labor needs by occupational category under current situations and for proposed projects (These estimates will be linked to process-based models and tied to industry targeting recommendations. The information generated will be critical in assisting local organizations with training responsibilities to develop a local workforce capable of competing in the knowledge-based economy. Other possible areas of work include evaluating and working to strengthen linkages between rural and urban-based clusters in terms of backward and forward linkages.)
22. Provide home buyer education, home rehabilitation and homeownership opportunities.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

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

**3. Description of targeted audience**

Students, child care providers, limited-resource persons, community leaders, board/council members, nonprofit organization boards and groups, adults, youth, business and workforce preparation agencies and disadvantaged citizens and communities, state, federal, and local agency personnel, association members, citizens faced with public issues, and citizens engaged in economic and tourism development.

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

**1. 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
2010	14000	2400	300	100
2011	14000	2400	300	150
2012	14500	2400	500	150
2013	14500	3500	500	200
2014	14600	5000	600	250

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

**Expected Patent Applications**

2010 :0                      2011 :0                      2012 :0                      2013 :0                      2014 :0

**3. Expected Peer Review Publications**

Year	Research Target	Extension Target	Total
2010	8	0	8
2011	10	0	10
2012	10	0	12
2013	10	0	12
2014	11	0	0

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

**1. Output Target**

- Publications, business plans and housing grants

2010 :18                      2011 :19                      2012 :20                      2013 :30                      2014 :0

- New Products, processes, procedures and policies

2010 :1                      2011 :2                      2012 :0                      2013 :0                      2014 :1

- Total number of people completing educational workshops

2010 :14000                      2011 :14000                      2012 :14000                      2013 :14000                      2014 :14000

- Number of board members trained

2010 60

2011 60

2012 60

2013 60

2014 65

**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	Total number of people reporting increased knowledge as a result of participation in CLED activities
2	Number of facilitated public meetings addressing public issues
3	Number of printed materials used to promote understanding of public issues
4	Number of National Issues Forums convened or moderated
5	Number of participants engaged in community promotion projects

**Outcome #1**

**1. Outcome Target**

Total number of people reporting increased knowledge as a result of participation in CLED activities

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010** :8000                      **2011** : 8500                      **2012** : 8500                      **2013** 9000                      **2014** :9000

**3. Associated Institute Type(s)**

•1862 Extension

**4. Associated Knowledge Area(s)**

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities
- 806 - Youth Development

**Outcome #2**

**1. Outcome Target**

Number of facilitated public meetings addressing public issues

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010** :13                      **2011** : 13                      **2012** : 14                      **2013** :17                      **2014** :17

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities
- 806 - Youth Development

**Outcome #3**

**1. Outcome Target**

Number of printed materials used to promote understanding of public issues

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010** :36                      **2011** : 37                      **2012** : 38                      **2013** :43                      **2014** :50

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities
- 806 - Youth Development

**Outcome #4**

**1. Outcome Target**

Number of National Issues Forums convened or moderated

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010 :** 8                      **2011 :** 9                      **2012 :** 9                      **2013 :** 9                      **2014 :** 9

**3. Associated Institute Type(s)**

- 1862 Extension

**4. Associated Knowledge Area(s)**

- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities
- 806 - Youth Development

**Outcome #5**

**1. Outcome Target**

Number of participants engaged in community promotion projects

**2. Outcome Type :** Change in Action Outcome Measure

**2010 :**100                      **2011 :** 110                      **2012 :** 110                      **2013 :**120                      **2014 :**120

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 608 - Community Resource Planning and Development
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families and Communities
- 806 - Youth Development

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

**1. External Factors which may affect Outcomes**

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

**Description**

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

**1. Evaluation Studies Planned**

- Before-After (before and after program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparisons between program participants (individuals,group,organizations) and non-participants
- Comparison between locales where the program operates and sites without program intervention
- Case Study
- After Only (post program)
- Retrospective (post program)
- During (during program)

## Description

### 2. Data Collection Methods

- Structured
- Unstructured
- Telephone
- Mail
- Observation
- On-Site
- Case Study
- Sampling
- Tests

## Description

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

**Program #8**

**1. Name of the Planned Program**

4-H Youth Development and Families

**2. Brief summary about Planned Program**

The 4-H and Youth Development Program in South Carolina is a community based experiential educational program dedicated to the overall positive development of the youth of South Carolina. The 4-H Program seeks to provide a community environment that supports the development of the positive assets of youth and development of life skills so that youth may become competent, caring and contributing adult members of society. In order to accomplish this goal, the SC 4-H Program utilizes an experiential subject matter oriented program that supports the current state school curriculum in primarily afterschool out-of-school club units, camps and short-term special interest programs. Local adult and teen volunteer leaders will be recruited and trained to provide land grant based subject matter curriculum and educational experiences.

Action Research will be conducted by pre-service teachers on the effectiveness of instructional beliefs, skills and reflection of field-based practices. The primary focus of the project is to prepare pre-service and in-service teachers who can serve 3rd through 8th grade students achieving below grade levels, those hard to reach, those with limited resources and those with poor literacy skills through the RARR Model for Teachers (Reflective Action Research Routine Model). Another research project will focus on the learning styles and preferences in a graduate blended learning course. The project will explore the differences between adult nontraditional students utilizing a blended learning course and students attending the traditional face-to-face course in a counseling theories and techniques course.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

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

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	4%	4%	4%	4%
802	Human Development and Family Well-Being	15%	15%	15%	15%
803	Sociological and Technological Change Affecting Individuals, Families and Communities	10%	10%	10%	10%
806	Youth Development	71%	71%	71%	71%
	<b>Total</b>	100%	100%	100%	100%

**V(C). Planned Program (Situation and Scope)**

**1. Situation and priorities**

School readiness improved during the late 1990s for the first time since the early 1980s, as assessed by teachers. Large percentages of students are still placed in special education, even though many of them are recognized as disabled only in academic learning but not in other areas of life. While many students are making solid progress in school, too many others are performing below minimum standards of the basic academic skills. Statewide, in the 8th grade, 29% perform below the basic level on the NAEP in math as compared with 33.7% in the state on the PACT test, and 33% statewide below basic on NAEP in reading as compared with 25.3% in the state on PACT. One of our priorities is to coordinate and promote the parallel utilization of 4-H curriculum with the state approved public school curriculum. Single parent families have increased. More and more parents of young children are working. Poverty declined dramatically in the 1970s, but has not changed much for young children since then, especially for the growing numbers of children in families headed by single mothers. Increasingly, parents must divide their time between children and employers. In 2000, 7.1% of all children did not live with their natural parents. Approximately 4.9% of all children lived with relatives and 1.6% lived with non-relative. One of our priorities is to enhance family well-being for all families through parent and youth involvement in 4-H.

In addition, volunteers will be equipped for leadership roles, will train youth with new knowledge and skills, and will make positive impacts in their communities. An effective volunteer management system for 4-H Youth Development will be established and sustained. County programs will provide a wide variety of experiential educational opportunities and curricula through a number of different delivery modes such as clubs, short term interest programs, camps, etc. dependent upon their personnel and budgets. Emphasis will be on volunteer-led educational programming that provides productive youth-adult partnerships. Statewide curriculum training for volunteers, staff and youth will be provided for replication at the club and county levels. Provide programs designed to meet the needs of limited-resource audiences. Money management skills will be taught and community partnerships will be created and strengthened.

Action research is primarily practitioner driven. It is a method for teachers to examine outcomes for students. It is a method of trying out ideas in practice as a means of increasing knowledge about and/or improving curriculum, teaching and learning. Also, it is important to discover the dynamics of relationships identified through online instructional features that are important for the creation of a successful educational program for meeting diverse needs of adult learners.

## 2. Scope of the Program

- In-State Extension
- In-State Research

## V(D). Planned Program (Assumptions and Goals)

### 1. Assumptions made for the Program

Due to a rapidly changing, complex American society and a media-reinforced "me" culture, youth need experience and training to become contributing, effective members of their communities. The 4-H program provides opportunities for youth to serve as partners in planning, implementing and evaluating the overall program as partners in the program, not merely recipients. b) Strong families provide children with a sense of belonging and the security of being loved and nurtured. Children from families without this strength and security often are at risk. 4-H seeks to support the family unit and strengthen the individual child, building upon the assets that are present. c) Far fewer youth, including 4-H members, now live on farms or require knowledge of crops and animal husbandry practices to survive. But learning about living things is just as critical today because society as a whole has lost touch with agriculture and food production. d) Although our society expresses a desire for open space and abundant natural resources, citizens lack a working knowledge of natural resources and an understanding of their role in environmental stewardship. 4-H seeks to create an awareness and appreciation of the natural environment and an understanding of individual and personal responsibility of every citizen to maintain the natural resources. e) Youth face the challenge of balancing of making healthy decisions with the desire to feel part of a group. 4-H provides a variety of programs, events and activities designed to increase the ability of youth to make wise decisions. . f) Living successfully in the information age requires that youth be knowledgeable and skilled in communicating their ideas and beliefs. This includes the ability to speak with poise and confidence in the public arena, effectively and efficiently communicate utilizing computer technology and through standard written formats. 4-H programs provide opportunities for youth to become proficient in many communications modes. g) Youth learn about the environment, other subject matter, and develop important life skills through experiential learning programs that use outdoor settings and/or residential environments. h) Trained adult volunteers are critical in providing a multiplying effect of limited Extension 4-H professional staff. To maximize the efforts of 4-H staff to reach a large and diverse youth audience, 4-H volunteers are utilized to lead 4-H clubs and county 4-H events and activities.

The research is an opportunity for adult learners to receive higher education or an advanced degree. Education will empower the community and its people. Activities may be designed to promote critical thinking, problem-solving skills, and inductive and deductive reasoning skills as a basis for helping students to become better learners and achievers.

### 2. Ultimate goal(s) of this Program

The overall goal for the SC 4-H Program is the development of communities of young people in South Carolina who are

learning leadership, citizenship and life skills. The 4-H Program seeks to achieve this goal by creating healthy experientially educational environments in the local community which support the positive development of young people ages 5 to 19.

Youth ages 5 to 19 will develop life skills and the corresponding competency, coping and contributory skills within the content areas of Leadership, Personal Development and Citizenship, Communication and Expressive Arts, Science, Technology and Engineering, Nutrition, Fitness & Safety Education, Food and Nutrition through EFNEP for Children and Youth, Plants and Animals, Natural Resources and Shooting Sports, and Resource Management.

Youth ages 5-8 years of age, will develop age appropriate life skills and the corresponding competency, coping and contributory skills within a variety of 4-H subject areas.

Youth will develop life skills and the corresponding competency, coping and contributory skills through a variety of Youth Camping opportunities. The SC 4-H Youth Development will recruit, train and manage a system of local adult and teen volunteer leadership who will work with youth ages 5-19.

Trained SC 4-H Volunteers and staff will provide land grant based subject matter curriculum and educational experiences so that youth might develop specific life skills, and will provide documentation to excel at a level of educational advancement in the field of action research. Also, to provide a successful educational program for meeting diverse needs of adult learners.

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

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2010	40.0	17.0	0.0	3.0
2011	41.0	19.0	0.0	3.0
2012	42.0	19.0	0.0	3.0
2013	43.0	19.0	0.0	3.0
2014	44.0	0.0	0.0	0.0

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

**1. Activity for the Program**

a) County programs will provide a wide variety of experiential educational opportunities and curricula through a number of different delivery modes such as clubs, short term interest programs, camps, etc. dependent upon their personnel and budgets.

) Emphasis will be on volunteer led educational programming that provides productive youth/adult partnerships.

c) In addition statewide curriculum training for volunteers, staff and youth will be provided for replication at the club and county levels.

d) Pre-service teachers will work with rural school districts.

e) Explore differences between adult nontraditional students utilizing a blended learning course and students attending the traditional face to face courses in a counseling theories and techniques course.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

Extension	
Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Demonstrations</li> <li>● Group Discussion</li> <li>● Other 1 (mentoring)</li> <li>● Education Class</li> <li>● One-on-One Intervention</li> <li>● Workshop</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Newsletters</li> <li>● Web sites</li> <li>● Billboards</li> <li>● TV Media Programs</li> </ul>



**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	Number of trained adult volunteers and staff, ( including non-Extension staff) who teach subject matter and life skills to youth, meeting S.C. educational standards by utilizing National 4-H Cooperative Curriculum System (4-HCCS) curriculum materials as available
2	Number of youth who gain knowledge in leadership and citizenship projects areas
3	Number of youth participating in service learning projects for the community and to improve themselves, and help others
4	Number of youth who gain knowledge and skills about plants, livestock and/or pets.
5	Number of youth who develop knowledge and skills in science, engineering, and technology (including electricity, computers, pontoon classroom, etc.).
6	Number of youth gain knowledge in nutrition and fitness
7	Number of youth who gain knowledge in natural resources and shooting sports
8	Number of youth who develop and improve communication skills through speaking and debating

**Outcome #1****1. Outcome Target**

Number of trained adult volunteers and staff, ( including non-Extension staff) who teach subject matter and life skills to youth, meeting S.C. educational standards by utilizing National 4-H Cooperative Curriculum System (4-HCCS) curriculum materials as available

**2. Outcome Type :** Change in Action Outcome Measure

**2010** 900                      **2011** : 1000                      **2012** : 1000                      **2013** :1000                      **2014** :1000

**3. Associated Institute Type(s)**

- 1862 Extension

**4. Associated Knowledge Area(s)**

- 806 - Youth Development

**Outcome #2****1. Outcome Target**

Number of youth who gain knowledge in leadership and citizenship projects areas

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010** 3500                      **2011** : 4600                      **2012** : 4600                      **2013** 4800                      **2014** :5000

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 806 - Youth Development

**Outcome #3****1. Outcome Target**

Number of youth participating in service learning projects for the community and to improve themselves, and help others

**2. Outcome Type :** Change in Action Outcome Measure

**2010** 350                      **2011** : 400                      **2012** : 450                      **2013** 450                      **2014** :500

**3. Associated Institute Type(s)**

- 1862 Extension

**4. Associated Knowledge Area(s)**

- 806 - Youth Development

**Outcome #4****1. Outcome Target**

Number of youth who gain knowledge and skills about plants, livestock and/or pets.

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010** :13000                      **2011** : 14000                      **2012** : 14000                      **2013** :15500                      **2014** :15500

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 806 - Youth Development

**Outcome #5**

**1. Outcome Target**

Number of youth who develop knowledge and skills in science, engineering, and technology (including electricity, computers, pontoon classroom, etc.).

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010 :**1500                      **2011 :** 1700                      **2012 :** 1700                      **2013 :**1900                      **2014 :**2000

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 806 - Youth Development

**Outcome #6**

**1. Outcome Target**

Number of youth gain knowledge in nutrition and fitness

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010 :**9000                      **2011 :** 10000                      **2012 :** 10000                      **2013 :**12000                      **2014 :**12000

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

**4. Associated Knowledge Area(s)**

- 802 - Human Development and Family Well-Being
- 806 - Youth Development

**Outcome #7**

**1. Outcome Target**

Number of youth who gain knowledge in natural resources and shooting sports

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010 :**2300                      **2011 :** 2400                      **2012 :** 2400                      **2013 :** 2500                      **2014 :**3000

**3. Associated Institute Type(s)**

- 1862 Extension

**4. Associated Knowledge Area(s)**

- 806 - Youth Development

**Outcome #8**

**1. Outcome Target**

Number of youth who develop and improve communication skills through speaking and debating

**2. Outcome Type :** Change in Action Outcome Measure

**2010 :**40                      **2011 :** 50                      **2012 :** 50                      **2013 :** 65                      **2014 :**75

**3. Associated Institute Type(s)**

- 1862 Extension
- 1890 Extension

#### 4. Associated Knowledge Area(s)

- 806 - Youth Development

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

#### 1. External Factors which may affect Outcomes

- Competing Programmatic Challenges
- Populations changes (immigration,new cultural groupings,etc.)
- Appropriations changes
- Economy
- Competing Public priorities

#### Description

Foreseeable factors that might affect current plans for the SC 4-H Program include:

In the last two years, reductions in state appropriations have not been as bad as in the prior five years and expectations are currently more positive, but county staff reductions and retirements have dramatically changed the county delivery of 4-H. Financial pressures at the University level are placing 4-H in a soon to be self-sufficiency position. Member fees, member purchase of curriculum and rising event registration fees are causing the 4-H program to become more accountable and publicly sensitive. There are very few state 4-H staff compared to other states, and roughly one-third of counties do not have full-time county 4-H staff. Because of the fewer number of staff, 4-H must develop new outreach approaches for public contact with both potential and current participants. A more volunteer oriented base with greater reliance on new communication channels must be envisioned and enacted.

In addition to a loss of actual manpower, retirement of faculty also means a loss of institutional memory and unspoken policies. New faculty unfamiliar with the Extension or 4-H history and philosophy come with no or different ideas which quickly can become new practice or interpretation of policy. Orientation of county and university and national faculty is needed or unexpected changes can quickly derail good long term planning efforts.

4-H is no longer the only afterschool youth program for our youth. Afterschool programs are growing dramatically across the state. Along with these additional partners in the field is a shift in the philosophy of community youth development. Collaboration at the community level for youth development requires a new orientation to many of our present staff and new competencies to facilitate joint programming.

A significant number of youth are becoming home schooled in South Carolina and evidence of their participation has become noticeable in 4-H recognition programs. As this trend continues 4-H must address new attitudes about education in the state and develop new approaches for attracting equal participation from all educational sectors of our society.

Not yet a major minority, but fast becoming one especially in certain areas of the state, Latinos are becoming a new audience with new needs and demands. Sensitivity to their culture and expectations is largely lacking currently. The need for Spanish curriculum and Spanish speaking staff is growing.

Rising gas prices, recession, and a state shift in economic tax base can jeopardize funding from both governmental as well as private sources. The changes can also influence youth and volunteers' ability to participate in the program.

### V(K). Planned Program (Evaluation Studies and Data Collection)

#### 1. Evaluation Studies Planned

- Retrospective (post program)
- Case Study
- Before-After (before and after program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- During (during program)
- Time series (multiple points before and after program)
- After Only (post program)
- Comparison between locales where the program operates and sites without program intervention

#### Description

The SC 4-H Program needs an ongoing systematic evaluation of its delivery system and the resultant impacts on youth, families and communities. Toward this goal SC 4H proposes to establish a 4H evaluation committee that will determine type and plans for implementing appropriate evaluations or impact studies over the next five years. The CUMIS system will provide one mechanism for collection of some of the evaluation data.

## 2. Data Collection Methods

- Sampling
- Telephone
- Observation
- Unstructured
- Mail
- Case Study
- On-Site

### Description

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

**Program #9**

**1. Name of the Planned Program**

Environmental Conservation for Wildlife

**2. Brief summary about Planned Program**

South Carolina has an abundance of wildlife resources that enhance the quality of life, provide families with outdoor recreational opportunities, and drive our economy by providing needed revenue to the state economy and local communities. For example, wildlife and wildlife-related activities contributed more than \$1.5 billion dollars annually to the state's economy. In addition, revenue generated from wildlife recreation (e.g. hunting) in rural communities generates an estimated \$6 million a year to individual counties. Because the Palmetto State is among the fastest growing in the nation, this growth has put unprecedented pressure on wildlife and the habitats that support them. Since most of the land base in the state is privately owned, private landowners have a tremendous opportunity to impact wildlife conservation in South Carolina. This program will explore innovative techniques to deliver educational programs on wildlife conservation and management on private lands, explore and develop synergistic solutions and techniques that overcome wetland and urban wildlife challenges to the benefit of people and wildlife in South Carolina.

Aquatic and terrestrial invasive and nuisance plant and animal species, including several state listed and federally listed illegal species, are significant in South Carolina. All invasive and nuisance species have adverse economic and environmental effects on production agriculture and natural resource interests with increased dependency on irrigation and environmental effects on fish and wildlife, particularly waterfowl populations. Extension is also charged with training and offering Continuing Certification Units to the 389 (2004) Licensed Aquatic Pesticide Applicators in South Carolina and with educational programs and most up to date control recommendations to private landowners and managers. Through joint programming between Clemson Extension and SC DNR, the state has twice avoided major infestations of giant salvinia, cited as "the worst weed in the world" and continues work on Phragmites and water hyacinth control.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** No

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

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
135	Aquatic and Terrestrial Wildlife	100%	100%	100%	100%
	<b>Total</b>	100%	100%	100%	100%

**V(C). Planned Program (Situation and Scope)**

**1. Situation and priorities**

Over three fourths of the wildlife habitat in South Carolina is owned by private landowners, primarily forest and farm owners. Consequently there is an information need related to managing wildlife on these lands. We must find ways to create and maintain ecologically significant habitats (including waterways and forests) in and around urban areas as traditional wildlife habitats are lost. Across the country, there is a growing awareness of the need for a proactive management strategy for urban wildlife involving all of the stakeholders. From corridor preservation to city parks and area subdivisions to backyard naturescaping, proactive urban wildlife management is needed to accomplish natural resource conservation objectives successfully. By developing a pool of well-trained volunteers, we can radically increase service hours toward direct enhancement

of our natural resources.

Invasive species, both plant and animal, cause significant economic, health and human safety concerns in South Carolina. Unfortunately there is a lack of knowledge of how to effectively address and minimize problems with nuisance species. Aquatic and semi-aquatic wildlife (beaver, muskrat, otter) and select waterfowl (in particularly Canada Geese) are a particular concern and can have significant impacts on water quality and consequently human health (E. coli and other bacteria outbreaks from waste).

Human/deer conflicts in South Carolina have increased significantly, causing an estimated \$53 million dollars worth of agricultural damage annually in the state, as well as human health and safety concerns in suburban and urban landscapes. Wildlife and human conflicts are a major issue in South Carolina and will continue to pose significant economic and human health risks as the state becomes more developed. An educated clientele is important in trying to find a balance between sustainable natural resource management and development in the state.

**2. Scope of the Program**

- In-State Extension

**V(D). Planned Program (Assumptions and Goals)**

**1. Assumptions made for the Program**

Educational programs teaching proactive management strategies can be used to successfully conserve natural resources and to minimize problems associated with invasive and nuisance species. In addition, the private sector is providing services for resolving nuisance species problems and these individuals (e.g. Nuisance Wildlife Control Operators, (NWCOS) require training to provide services to reduce conflicts and problems with nuisance species in the most effective, legal and humane manner.

**2. Ultimate goal(s) of this Program**

This program aims to provide landowners and natural resource managers with the tools, information and economic incentives to maintain and enhance lands for wildlife and to provide services and solutions to mediate and resolve human-wildlife conflicts as they occur.

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

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2010	4.0	0.0	0.0	0.0
2011	4.0	0.0	0.0	0.0
2012	4.3	0.0	0.0	0.0
2013	4.5	0.0	0.0	0.0
2014	4.5	0.0	0.0	0.0

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

**1. Activity for the Program**

1. Develop and deliver educational programs and products on wildlife conservation and management on private lands.
2. Develop web-based educational programs on wildlife conservation and management on private lands.
3. Examine urban wildlife planning issues from the macro level-regions, states, counties, and cities-to the individual site.
4. Educate involved stakeholders of the diverse issues and concerns involved in attracting and/or managing existing urban/suburban wildlife.
5. Encourage civic and community/governmental leaders to plan for urban wildlife "greenspaces" which include waterways and impoundments and educate each about the importance of urban wildlife and its priority on the urban/suburban agenda

nationwide.

6. Assist and educate in the development and implementation of urban wildlife plans (i.e. greenspace, waterways and forested sections) and models for area municipalities and developers.

7. Continue to provide training to public and private sector natural resource professionals (NWCOS) on best management practices for nuisance wildlife management

8. Conduct Pond Clinics and programs to educate landowners/managers and Aquatic Pesticide Applicators about the most up to date control recommendations for aquatic weed management.

9. Furnish up-to-date information to landowners and managers concerning aquatic weed management and control recommendations.

10. Use trained volunteers to promote wildlife management programs among their peers.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

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

**3. Description of targeted audience**

State, local government and civic leaders, business owners, developers, home and garden clubs, area homeowners, wildlife specialists, state and federal biologists and administrators, potential volunteers, farm and forest owners, landowners/homeowners, Nuisance Wildlife Control Operators, natural resource professionals, Aquatic Pesticide Applicators, general public, farmers, ranchers, poultry and swine producers, foresters, urban, suburban and rural residents, urban planners and managers, concerned citizens, land owners/managers, agency personnel, citizens of South Carolina, Extension agents, youth, municipal officials, and local community groups statewide, children in school, after-school, summer and 4-H, programs, Extension administrators, and support staff.

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

**1. 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
2010	3000	1000	0	0
2011	3000	1000	0	0
2012	3000	1000	0	0
2013	3000	1000	0	0
2014	3100	10000	0	0

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

**Expected Patent Applications**

2010 :0                      2011 :0                      2012 :0                      2013 :0                      2014 :0

**3. Expected Peer Review Publications**

Year	Research Target	Extension Target	Total
2010	0	0	0
2011	0	0	0
2012	0	0	0
2013	0	0	0
2014	0	0	0

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

**1. Output Target**

- Number of people completing educational workshops

**2010** 3000

**2011** 3000

**2012** 3100

**2013** 3200

**2014** 3300

**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	Number of people reporting knowledge gained

**Outcome #1**

**1. Outcome Target**

Number of people reporting knowledge gained

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010** 2500                      **2011** : 3000                      **2012** : 3000                      **2013** 3100                      **2014** :3100

**3. Associated Institute Type(s)**

- 1862 Extension

**4. Associated Knowledge Area(s)**

- 135 - Aquatic and Terrestrial Wildlife

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

**1. External Factors which may affect Outcomes**

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

**Description**

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

**1. Evaluation Studies Planned**

- Comparisons between program participants (individuals,group,organizations) and non-participants
- Retrospective (post program)
- Before-After (before and after program)
- After Only (post program)
- During (during program)
- Case Study
- Comparison between locales where the program operates and sites without program intervention

**Description**

**2. Data Collection Methods**

- Whole population
- Sampling
- Unstructured
- Observation
- Tests
- Mail
- On-Site
- Case Study
- Telephone

**Description**

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

**Program #10**

**1. Name of the Planned Program**

Sustainable Forest Management

**2. Brief summary about Planned Program**

The sustainable forest management program encourages landowners to develop management plans by providing them with alternative silvicultural systems and methods that are suitable for their individual objectives. Alternative systems include uneven-age management, mixed pine/hardwood management and natural regeneration systems. Programs will also educate landowners on forestry Best Management Practices that can be applied to their lands. The program will also present information on urban forest issues and education urban dwellers who may own family forests.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

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

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
122	Management and Control of Forest and Range Fires	30%	30%	30%	30%
123	Management and Sustainability of Forest Resources	50%	50%	50%	50%
124	Urban Forestry	20%	20%	20%	20%
<b>Total</b>		100%	100%	100%	100%

**V(C). Planned Program (Situation and Scope)**

**1. Situation and priorities**

Professional foresters are generally biased in favor of clear cutting and intensive management methods. Many landowners fail to manage their forestland because they object to clear cutting or other conventional intensive practices that focus primarily on timber production.

**2. Scope of the Program**

- In-State Extension
- In-State Research

**V(D). Planned Program (Assumptions and Goals)**

**1. Assumptions made for the Program**

Teaching forestry best management practices can improve forest productivity and promote natural resource conservation.

**2. Ultimate goal(s) of this Program**

Promote sustainable management of forest resources and understanding of natural forest systems through: 1) proactive leadership, (2) continuing education, and (3) educational training on public issues affecting forestry.

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

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2010	6.0	1.0	1.0	0.0
2011	7.0	1.0	1.0	0.0
2012	7.0	1.0	1.5	0.0
2013	8.0	1.0	1.8	0.0
2014	8.0	1.0	0.0	0.0

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

**1. Activity for the Program**

1. Develop and conduct training programs to teach sustainable forestry principles
2. Utilize and expand demonstrations of longleaf pine restoration, even and uneven-age management, pine straw production, and alternative management systems throughout the state.
3. Provide natural resource professionals with programming on longleaf pine ecology, management technology, and hardwood management.
4. Write and produce news articles and radio programs and other forms of mass media on longleaf pine management and ecology.
5. Inform landowners of the economic and environmental benefits of using BMPs in all forest management operations.
6. Work with established groups within the forestry community to support and promote appropriate training and outreach programs related to sustainable forest management.
7. Use trained master landowners to promote forest management among their peers.
8. Utilize and expand existing demonstrations of hardwood (bottomland and upland) management to provide an understanding of even age and uneven age management systems.
- 9 Utilize the TOP Logger and other logger education programs to train loggers on sustainable forestry and alternative silvicultural systems.
10. Promote the use of prescribed fire.
11. Educate public officials and urban communities about the benefits of urban forests.
12. Develop methods of control and educate professionals and family forest landowners on these to eliminate or control invasive pests of forests and enhance forest health.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

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

**3. Description of targeted audience**

Private landowners, loggers, professional resource managers, foresters and other natural resource professionals, road building and site preparation contractors, family forest landowners, consulting foresters that assist private landowners, and the general public

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

**1. 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
2010	3300	400	0	0
2011	3400	450	0	0
2012	3400	450	0	0
2013	3400	450	0	0
2014	3400	10000	0	0

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

**Expected Patent Applications**

2010 :0                      2011 :1                      2012 :0                      2013 :1                      2014 :0

**3. Expected Peer Review Publications**

Year	Research Target	Extension Target	Total
2010	4	0	4
2011	6	0	6
2012	6	0	6
2013	8	0	8
2014	0	0	0

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

**1. Output Target**

- Number of people completing educational workshops

2010 :3100                      2011 :3200                      2012 :3300                      2013 :3400                      2014 :3400

- Disclosures

2010 :0                      2011 :1                      2012 :0                      2013 :0                      2014 :0

- New Products, Processes, Procedures and Policies

2010 :1                      2011 :1                      2012 :0                      2013 :0                      2014 :0

- Percent increase of outside funds for grants, contracts and gifts

2010 :6                      2011 :6                      2012 :5                      2013 :6                      2014 :0

**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	Number of people reporting increased knowledge
2	Number of landowner acres impacted.

**Outcome #1**

**1. Outcome Target**

Number of people reporting increased knowledge

**2. Outcome Type :** Change in Knowledge Outcome Measure

**2010** :2300                      **2011** : 2400                      **2012** : 2400                      **2013** 2400                      **2014** :2500

**3. Associated Institute Type(s)**

•1862 Extension

**4. Associated Knowledge Area(s)**

- 122 - Management and Control of Forest and Range Fires
- 123 - Management and Sustainability of Forest Resources

**Outcome #2**

**1. Outcome Target**

Number of landowner acres impacted.

**2. Outcome Type :** Change in Action Outcome Measure

**2010** :14000                      **2011** : 15000                      **2012** : 15000                      **2013** :15000                      **2014** :16000

**3. Associated Institute Type(s)**

•1862 Extension

**4. Associated Knowledge Area(s)**

- 122 - Management and Control of Forest and Range Fires
- 123 - Management and Sustainability of Forest Resources

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

**1. External Factors which may affect Outcomes**

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

**Description**

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

**1. Evaluation Studies Planned**

- Comparison between locales where the program operates and sites without program intervention
- Case Study
- Retrospective (post program)
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Before-After (before and after program)
- During (during program)
- Comparisons between program participants (individuals,group,organizations) and non-participants

**Description**

Overall BMP compliance level as determined by the SC Forestry Commission monitoring

**2. Data Collection Methods**

- On-Site
- Sampling
- Tests
- Telephone
- Mail
- Observation
- Unstructured

**Description**