

SOUTH CAROLINA  
FY 2006  
ANNUAL REPORT OF  
ACCOMPLISHMENTS

Submitted to CSREES-USDA

April 1, 2007

CLEMSON UNIVERSITY  
SOUTH CAROLINA STATE UNIVERSITY

CERTIFICATION:

This Annual Report for the Joint Plan of Work for the period October 1, 2005 to September 30, 2006 for Research and Extension in South Carolina is respectfully submitted April 1, 2007 by:

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## **A. PLANNED PROGRAMS**

### **National Goals**

#### **GOAL 1 AN AGRICULTURAL SYSTEM THAT IS HIGHLY COMPETITIVE IN THE GLOBAL ENVIRONMENT**

**Key Theme:** Enhancing Competitive Ag Production Systems

##### Program Components

##### Sustainable Agricultural Production

- Animal Production Systems
- Integrated Crop Management, Agronomic Crops
- Integrated Crop Management, Horticultural Crops
- Organic Production Systems
- Farm Safety
- Collard IPM
- Peach IPM
- Cotton IPM
- Landscape and Ornamental Plant Pest Management
- Small and Minority Farms

##### Risk Management for Agricultural Firms

- Agricultural Market Risk Assessment
- Economic analysis of Enterprises and Technologies
- Business Systems and Financial Risk Management

##### Agricultural Program Information and Performance Management System (APIPMS)

**Key Theme: Enhancing Competitive Ag Production Systems: Animal Production  
Systems**

##### a. Description

The purpose and goal for “Animal Production Systems” is to deliver educational information to livestock and forage producers in South Carolina that will enhance their production systems in a variety of ways. Measurement of success can be quantified through dollars saved or profits depending on adoption of recommended practices by programs presented by Extension agents and specialist. In addition, educational programs are developed and presented that address environmental impact issues from livestock operations, herd health issues, animal breeding and genetics as well as proper marketing venues. Research programs are in place at Clemson to help

answer specific production problems in the area of beef cattle primarily in the area of breed complementarity as well as emphasis on reproduction efficiency within the cattle herds. An array of varied research-Extension programs are featured at annual field days at the Edisto REC as well as field days across the state and region coupled with individual county meetings that cover production issues across all major livestock species including poultry. Educational programs were presented for dairy, equine and beef in pasture management. Crossbreeding research has shown that the greatest benefits of heterosis or hybrid vigor are realized through the crossbred cow. Breed complementarity combines the advantages of two or more breeds to produce a more productive animal. In South Carolina, there are four breeds from which significant numbers of performance-tested bulls are available to cow-calf producers - Angus, Gelbvieh, Simmental, Hereford and Charolais. This project will evaluate the optimum utilization of these five breeds in South Carolina's Coastal Plains production environment. This research-extension program is featured at annual field days, educational tours and used for in-service training of agents.

b. Impacts: The Animal Production Systems Project reported that 296 educational programs and activities were conducted for stakeholders with 14,230 participating. Of these, 11,459 people reported an increase in knowledge by participating in these educational activities. Of these, 11,459 reported increased knowledge 4,225 of them stated they plan to adopt recommended practices and technologies. 736 people are planning to improve their genetic parameters by utilizing EPD's in their breeding programs and 482 people plan to adopt new recommended grazing management systems.

In addition, there were also 303 youth participating in these animal production/management meetings, field days and area events.

Conducted Southeast Beef Cattle Marketing School at the Pee Dee Rec. Other workshops have included Relative Forage Quality, Profitable pasture management in the Piedmont, Establishing and managing tall fescue and legumes, Establishment and management of Bermudagrass, Forage Quality and Marketing Quality Hay, Forage fed beef production systems and forage extension efforts in SC.

Published new fact sheets on evaporative cooling and saving energy using spark ignition brooders.

Conducted small flock certification program; conducted artificial insemination school

Newsarticles written on pasture management

Cow Calf clinic held

CAMM Recertification training was conducted.

Sheep and Goat IPM conducted parasite management field day in Florence.

One specialist was the Plenary session speaker for Aquaculture America 2006; presented 2 papers; conducted fisheries development grant workshop

### Patent Disclosures

Recombinant Follicle Stimulating Hormone for Cattle & Horses Produced in Novel Expression Vectors.

Modified Feed Supplement Capsule for Ruminants

Necropsy and Autopsy Sample Tray

Patents Filed

Inhibition of Pathogenic Agents Including  $\alpha 6\beta 4$  Integrin Receptor at a Surface.

Technical Contributions

6

c. **Source of Federal Funds:** Smith Lever 3b&c and Hatch

d. **Scope of Impact:** State and multi-state

**Key Theme: Enhancing Competitive Ag Production Systems:–  
Integrated Crop Management (ICM) – Horticultural Crops**

a. Description

The horticultural production systems project focused on programs and activities related to integrated crop management. The areas of concern were improving profitability and reducing the negative environmental impacts of horticultural cropping systems. Programs related to the adoption of new horticultural production systems were also a major thrust of this project.

b. Impact

The ICM - Horticultural Crops Project reported 185 educational activities conducted, with 3528 people completing educational programs. 2841 participants reported increased knowledge, 1267 indicated that they plan to adopt learned practices, and 162 people said that they have adopted the practices. Horticulture extension personnel reported that recommended Horticulture ICM practices have been adopted on over 243,294 acres in South Carolina, and that over 55,105 acres have been planted to new, alternative and high value horticultural crops.

Highlights of Peach ICM Activities:

A long-term peach system trial at the Musser Fruit Research Farm demonstrated that substantial improvements in tree growth and yield can be achieved with supplemental irrigation, and that rank tree growth can be controlled by reducing the amount of nitrogen fertilizer applied through drip irrigation. Reduced fertilizer application also minimized canopy shading, improved fruit quality and return bloom, and also reduced dormant pruning costs. Although high-density plantings offered an initial yield advantage in the early life of the planting, traditional open-center plantings out yielded the higher density systems by the sixth cropping year.

Armillaria root rot disease (also called oak root rot) remains a persistent problem for

growers replanting orchards on sites with a history of peach production because field inoculum increases in the soil with each subsequent planting of peach. Long-term field trials are being conducted at grower farms in the state with a history of Armillaria root rot. In these trials, raised beds, preplant soil fumigation and mycorrhizal root dips, and postplant root collar excavation are being used to reduce the incidence of Armillaria root rot disease. Other orchard trials are investigating the use of passive trunk injection of fungicides in the fall (i.e., Alamo) to protect roots of trees adjacent to an infection focus in the field. Laboratory experiments are also underway to genetically engineer a rootstock for peach with a gene that confers resistance to this serious peach disease. Trials with transgenic tobacco (model system) indicate that enhanced tolerance to many soilborne pathogens is attainable. Current trials with transgenic plum (a "cousin" to peach) are currently being conducted in the greenhouse.

A large-scale peach variety evaluation program provides growers with comprehensive and updated information on variety performance so that they can make informed decisions about the selection of profitable peach varieties for new plantings ([www.clemson.edu/hort/Peach/index.php](http://www.clemson.edu/hort/Peach/index.php)). Four trial sites exist in the primary peach growing regions of the state on commercial grower farms and also at the Clemson University Musser Fruit Research Farm.

A regional peach grower handbook has been published with comprehensive information on peach best management practices ([entomology.ent.uga.edu/Peach/peach\\_handbook/hbk.htm](http://entomology.ent.uga.edu/Peach/peach_handbook/hbk.htm)) with much info relative to ICM. At the same website, there is also a new on-line regional integrated pest management guide for peach growers.

Oak root rot disease is the single greatest soil-borne threat to the SC peach industry. Labor and production costs are increasing for peach growers. New systems and cultivars need to be developed to ensure grower profitability. Research to address this problem has three components: 1, to develop strategies to manage oak root rot disease in peach orchards; 2, to compare profitability of various orchard management systems; and 3, to evaluate new germplasm for the SC peach industry.

- Viral diseases of peaches, ornamentals, *Rubus* spp, and cucurbits (cantalopes) are causing significant economic losses in SC. Researchers are characterizing 'novel' viruses isolated from these crops. Data on the incidence of these previously uncharacterized viruses, and other characterized viruses that infect the crops, will be used to provide virus-tested sources of propagation material, to identify sources of infection, and to evaluate and implement IPM procedures for the control of these viral diseases.

#### Patents Issued

Intermittent Immersion Vessel Apparatus and Process for Plant Propagation

#### Technical Contributions

18

- c. Source of Federal Funds: Smith Lever 3b&c and Hatch

d. Scope of Impact: State and Regional

**Key Theme: Enhancing Competitive Ag Production Systems: Integrated Crop Management (ICM) – Agronomic Crops**

a. Description

Since the elimination of restrictions on peanut production in the 2003 Farm Bill, South Carolina growers with no history or knowledge of peanut production have been interested in this commodity as an alternative crop. During 2005-2006 and over the previous three years, Clemson Extension put together a complete production package for new and traditional peanut growers. The details of this production plan were delivered by multi-county grower meetings, a statewide peanut meeting, on-farm demonstrations, harvest clinics, and many field visits with agents, growers, and consultants for problem solving troubleshooting. The agronomic production systems project focused on programs and activities related to integrated crop management. The areas of concern were improving profitability and reducing the negative environmental impacts of agronomic cropping systems. Programs related to the adoption of new agronomic production systems were also a major thrust of this project. In addition, programs dealing with the adoption of alternative methods of nutrient and pest management were conducted.

b. Impact

The Agronomic Crop ICM Program organized 293 educational programs and activities during 2005, with 8,026 participants attending. Of these, 5,862 reported increased knowledge, 2,654 indicated that they plan to adopt recommended agronomic practices, and 819 said that they actually have adopted agronomic production practices that they learned about during educational events. Agronomic Crop ICM extension personnel reported that 54,359 acres of South Carolina row crops are currently grown using recommended ICM practices, and over 7,477 new acres have been planted in new agronomic crops (i.e., peanut; see success story below).

Success Story: Personnel involved with the Clemson University Agronomic Crops ICM Program have developed and led the implementation of a comprehensive production and marketing plan to expand peanut production in the state. As a direct result, peanut acreage increased six-fold over the past four years. (10,000 in 2002; 19,000 in 2003; 33,000 in 2004; 59,000 in 2005). This growth represents an annual increase of over \$ 29 million in crop value alone in some of South Carolina's poorest rural counties. The opening of 6 new buying points in these counties also represents an infrastructure investment of millions of private sector dollars and jobs. The introduction of peanut into cotton and corn rotations also has improved profitability of these non-legume commodities. Greater crop diversity also means reduced market risk.

- Research is underway to increase the understanding of how to extend asparagus and strawberry production into the holiday season. Research will determine how to produce organic vegetables and herbs and will develop environmentally adapted medicinal plants with high marker compounds for the dietary supplement industry.



- Traditional plant breeding has limitations to crop improvement and the chromosomes of crop plants must be examined to facilitate crop improvement using recombinant DNA techniques. Scientists will develop DNA blueprints (physical frameworks) of the genomes of crop plants that can be used by plant geneticists for crop improvement.
- Work continues to develop the technologies, principles, and concepts of site-specific management of soil compaction, nematodes, weeds, and irrigation in coastal plain soils.
- The soybean cyst nematode is one of the most devastating pests of soybeans. Resistance to many soybean pests has been found in primitive germplasm.
- Genetic engineering will be used to exploit the genome of the primitive germplasm with broad resistance to soybean cyst nematodes to identify how the plant deals swiftly with stress, and to devise more lasting protection against the nematode in modern cultivars.
- Scientists are developing and testing effective integrated weed management strategies that will minimize herbicide usage while ensuring adequate season-long weed control.
- Abiotic and biotic stresses on the soybean plant combine to decrease seed yields and limit grower profits. Research is in progress to enhance understanding of the genetics of resistance to these stress factors and develop soybean germplasm and cultivars having improved seed yield, improved pest resistance traits, and the desired seed composition traits.
- New IPM strategies are being developed to effectively utilize new technologies such as transgenic cottons while solving problems such as insecticide resistance. Beneficial insects, transgenic cotton varieties and new safe insecticides that allow farmers to control pests in profitable production systems will be considered in developing these new strategies.
- Research is underway to accelerate the development and implementation of cost-effective, environmentally safe alternatives to chemical pesticides for insect control.
- A new system has been developed to mechanically remove tobacco flowers without spreading bacterial wilt, a major disease in flue-cured tobacco
- Management systems are being developed using new advances in DNA based pathogen identification, for control of root knot and bacterial wilt of tobacco.
- Scientists are examining the effect of tillage systems on pest management inputs
- Piercing/sucking insects are anticipated to be the major problem in Bollgard II cotton which adequately controls lepidopterous pests. It is thought that aphids may be a potential pest as Bollgard cotton varieties do not control them. Research will define treatment thresholds for piercing/sucking insect pests in Bollgard cotton and if aphids in fact cause economic yield loss in cotton.
- Small grain variety/strain performance is critical to an agricultural enterprise that uses small grains. An unbiased source of small grain variety/strain performance in S.C. is being developed for growers, seedsmen, and Extension personnel.
- Work is underway to learn more about the effective use of natural enemies by understanding their ecology and that of the target pests, their interactions with production practices, and the most effective means for utilizing them.

### Patent Disclosures

Secure Shipping Process for Seeds and Other Agricultural Products

## Technical Contributions:

23

- c. Source of Federal Funds: Smith Lever 3b&c and Hatch
- d. Scope of Impact: State and Region

### **Key Theme: Enhancing Competitive Ag Production Systems: Organic Production Systems**

#### a. Description

In 2006, 85 programs were conducted in this area, with 1,585 persons attending. Over 713 people reported gaining knowledge with 300 reported knowledge gained. In 2005 the South Carolina SARE PDP Program qualified as a Model State Program (MSP). MSP funding was received in early summer 2005 at which time the MSP Assistant Position was established. The MSP Assistant Position has greatly facilitated statewide training program efforts in collaboration with SC State (1890) Extension and the Carolina Farm Stewardship Association (CFSA). Training activities in 2006 focused on the enhancement of new and existing small farm enterprises in South Carolina.

#### b. Impacts

We have increased the number and diversity of individual stakeholders and groups who participate as members of the state Advisory Committee, and who provide input into the sustainable agriculture training planning process. We have expanded training opportunities for extension agents and other agriculture professionals by organizing workshops on specific topics related to stakeholder-identified training needs, and by providing travel scholarships for participation in additional local and regional training events. An annual sustainable agriculture retreat was held in January to identify training needs and to schedule training events for the year.

We provided travel scholarships for 10 extension agents and farmer-educators to attend the 2005 CFSA Conference and to participate in Conference workshops on various topics related to sustainable agriculture, and to participate in conference farm tours. This not only provided an opportunity for participants to gain knowledge and competency in sustainable agriculture, but also facilitated interactions and established relationships between agriculture professionals and farmers.

We provided \$500 in travel support for Conference speakers who contributed expertise and information on topics relevant to the sustainable agriculture community in South Carolina. The following training events were organized and conducted during 2005

- *State Sustainable Agriculture Planning Meeting and Retreat, January 22-23.* Meeting of the state Advisory Committee and stakeholders (75 participants). Training needs for the year were identified and training events scheduled.

- *Workshop: Season Extension Vegetable Production, June 10-11, Clemson University.* 58 participants (agents and farmers) gained knowledge of season-extension vegetable production and marketing techniques.
  - *Sustainable Beef, Dairy and Forage Field Day, June 25, Wateree Farms, Sumter, SC.* 43 participants (agents and farmers) gained knowledge of sustainable forage and hay production.
  - *Calhoun Field Laboratory Farm Tour, June 29.* 25 high school students and agents toured the Clemson University CFL organic farm and learned about organic farming practices. The Calhoun Field Laboratory Project site at Clemson ([www.clemson.edu/scg/sust/calhounfieldlab\\_main.html](http://www.clemson.edu/scg/sust/calhounfieldlab_main.html)) continues to serve as a resource for teaching and demonstration of sustainable/organic vegetable production practices.
  - *Precision Agriculture Field Trip, July 5-7, North Alabama.* Five extension agents traveled to the Auburn University Belle Mina Research Center and neighboring farms where they observed how precision agriculture technology is being used to reduce on-farm fertilizer and pesticide inputs
  - *Goat and Sheep Parasite Workshop and Farm Tour, July 16, Ovis Hill Farm, Timmonsville, SC.* Extension agents and farmers (45 participants) gained hands-on experience with new techniques for small ruminant parasite management.
  - *Specialty Food Crops Workers Meeting, August 3-4, Charleston, SC.* This meeting was organized to formalize a statewide initiative to develop production and marketing techniques for high-value specialty food crops (23 extension personnel attended).
  - *Poultry Processing Workshop, October 16, Broken Wing Farm, Honea Path, SC.* Hands-on training in on-farm poultry processing methods for 35 extension agents and farmers.
  - *Compost Tea Workshop, October 18, Clemson University CFL Organic Farm.* Hands-on training in compost tea production and tour of compost tea tomato experiment plots (to evaluate compost tea for tomato disease control) for 35 extension agents and farmers.
  - Extension personnel working in Organic Production Systems reported 80 educational programs and activities conducted with 710 participants. Of these, 700 reported increased knowledge of organic production. 468 of those who increased knowledge plan to adopt practices learned.
- c. Source of Federal Funds: Smith Lever 3b&c and Hatch
- d. Scope of Impact State and Regional

### **Key Theme: Livestock Production Project (1890)**

The Livestock Program (Beef Cattle Improvement and Meat Goat) is designed to provide small-scale, limited-resource farmers hands-on trainings that demonstrate, forage rotation, breeding, and herd health practices, such as vaccinating animals and deworming. The program promotes an alternative livestock enterprise compatible with the farm size and farming system. Farmers improved their niche, direct and group marketing. As a result, farmers obtained higher prices for their herd. The skills received by the farmers enhanced their small farm enterprise management, decision-making and low-production cost concepts. The Livestock Program, in collaboration with Heifer International and Initiative for Future

Agriculture and Food System project, provided a select group of farmers access to pure bred Angus bulls, bred Boers bucks, and Spanish goats. Through participation in the Livestock Program, farmers had access to training that increased their herd management skills and enabled them to make more informed business decisions.

- b) **Impact:** The livestock program conducted 124 educational programs and hands-on activities for limited resources farmers, with 261 farmers participating. One hundred forty eight farmers increased their knowledge and 136 planned to adopt the recommended practices. Specifically, 89 farmers adopted the recommended practices to improve their production management, marketing and farm enterprise management skills. Through the risk management education training, 68 farmers adopted educational information and integrated the techniques into their farming operation. One hundred eleven farmers are making progress toward retention of their farms, while 52 reported an increase in their farm income.
- c) **Source of Federal Funds:** Smith-Lever
- d) **Scope of the Impact:** State
- e) **Success stories**

Small scale livestock producers in the South Carolina counties of Abbeville, Edgefield, Greenwood, McCormick and Saluda were faced with the problem of not being able to receive premiums for their cattle. The problem arose because, as individuals, they lacked the large herd numbers needed to produce uniform truckload lots of calves to receive price premiums from order buyers. Many producers also lacked the proper facilities needed to administer the animal health products required to receive price premiums for the animals. Research completed by Ft. Dodge Animal Health's Prime Protection Program indicated a price premium of \$3.56/cwt for calves that were on a comprehensive herd health program. Truckload lots of calves must also be of similar age, weight and breed type to complete the price premium circle.

The SC State University Agricultural agent for the Greenwood Cluster met with the local agriculture program advisory committee to implement programs to address and possibly remedy the above-mentioned issue. A seminar was conducted, in September 2006, with a representative from the USDA Agricultural Marketing Service focusing on interpreting market reports, frame scoring, muscling and breed complimentary in cattle. The seminar helped producers identify the qualities most sought after by the buyers of their cattle. A squeeze chute was purchased by SC State University 1890 Extension to assist producers who lack proper facilities in conducting herd health practices in a safe and efficient manner. The chute was portable and easily transported from farm to farm within the cluster areas. A portable scale system was also available for producers wanting to tract animal performance and eliminate under achieving animals from the herd. A seminar was held on the importance of vaccinating cattle against bacterial and respiratory diseases in the late winter. Attendees also learned the proper injection site so tissue scarring would be kept at a minimum. Vaccination was a key component in the comprehensive herd health program. Another key component in herd health was proper nutrition. To combat low nutrition levels, local producers with the help of SC State 1890 Extension – Greenwood,

teamed up with a mineral supplement company in South Georgia and feed mill in Eastern Georgia to provide minerals and a high energy creep feed to supplement their herds.

After attending the marketing seminar in September 2006, approximately 65 percent of the cluster producers implemented breeds of cattle, which will produce more acceptable calves for their customers (order buyers) in terms of muscling, frame score and carcass quality. The addition of the squeeze chute and scale has led to approximately a 40 percent increase in producers who previously had no health program and were not tracking animal performance that are now completing the tasks. As a result of improving the nutrition of their animals through supplementation with minerals and preconditioning feed, 75 percent of producers have reported increased weight gain and a better appearance in their animals in terms of hair coat sheen.

### **Key Theme: Commercial Vegetable, Marketing, and Home Gardening Project (1890)**

- a) The Commercial Vegetable Production Program at South Carolina State University provided educational and technical assistance to small scale, part-time and limited resource farmers. The producers traditionally planted row crops, but encouraged to grow vegetables using the latest practices. The farmers participated in production meetings, workshops, on-farm demonstrations, and farm tours. The activities they participated in were intended to improve cash flow and slow the economic decline of small farms. In addition to production management, small farmers were involved in marketing training, which provided instruction on improving marketing strategies. The South Carolina Department of Agriculture provided promotional techniques for marketing of fresh fruit and vegetables. Using the Farmers Market, the home gardeners and commercial vegetables producers had a market outlet to sell fresh vegetables and produce. Commercial vegetable producers and home gardeners received training that certified them to accept Women, Infants, and Children (WIC) and senior citizens vouchers. The vouchers provided participant farmers access to an additional source of income.

The Home Gardening and Fruit Production program was offered to encourage home food production by limited resource families and individuals. Home gardeners benefited from workshops, site demonstrations, trainings, and meetings. The program efforts were also directed toward improving consumption of fresh, nutritious produce to promote health and well being.

- b) 1890 Extension agents conducted 82 educational programs to include: workshops, on-farm demonstrations, production meetings, farm tours and technical assistance. Of the 334 farmers participating, 285 reported having increased their knowledge and planned to adopt the recommended practices. In addition, 113 farmers actually adopted the recommended practices learned and 88 farmers incorporated the recommended practices into their farming operation. Through the commercial vegetable production and marketing program, 68 farmers committed to the maintenance and retention of their small farms and reported an average income increase of 30 percent.

The Home Gardening program provided 23 educational activities to include: workshops, on site demonstrations, and trainings. As a result of the activities, 28 home gardeners were enrolled. Of the participants, 16 increased their knowledge of gardening techniques and planned to adopt the recommended practices. Fifteen gardeners incorporated the practices into their gardening projects. Of the enrolled participants, 10 increased their home grown produce supply and eight actually sold surplus vegetables to recoup seed and fertilizer expenses.

c) Source of Federal Funds: Smith-Lever

d) Scope of Impact: State

e) Success Story: Small Farm Commercial Vegetable Production and Marketing Project  
Priority Program: Enhance Economic Opportunities for Agricultural Producers.

Small, part-time and limited resource farmers need to learn updated marketing strategies and participate in marketing outlets established to improve their commercial vegetable operations and small farm profitability. South Carolina State University 1890 Extension Small Farm Program sponsored a farmers marketing program in the South Carolina Low Country. The program provided a network of farmers markets in S.C. Low Country counties. The program's objectives were (1) to initiate a networking process among vegetable producers to supply produce for six local markets in the Low Country, (2) to educate small producers in the areas of production, marketing and risk management and (3) to provide marketing outlets and opportunities for small farmers and producers. Marketing projects have been expanded to include growing for a regional food bank, preparations for an auction market and community supported agriculture project.

In addition to a network of farmers markets, five established in the S.C. Low Country counties, farmers also grew vegetable crops for the Low Country Food Bank. Other marketing projects included a regional auction market and a community support agriculture program. Fifty-six (56) farmers are currently participating in the marketing programs. Seventy-five percent (75%) of participating farmers reported increased profits in their farm operations.

### **Key Theme: Sustainable Agriculture Programs and Production Practices (1890)**

a) Sustainable Agriculture programs provided educational activities to limited resource farmers with small acreages. Minimizing off farm inputs for low income producers and maximizing on farm resources is the goal of the program. The sustainable agriculture programs and activities included the following:

- Integrated Pest Management (Soil Sampling and Nutrient management)
- Risk Management Education
- Simplified Farm Record Keeping
- Small Farm Leadership Training
- Pastured Poultry and Aquaculture Project for Small Farms

Alternative Enterprises such as Pastured Poultry and Agriculture Projects were offered to farmers with small acreage and limited resources. On farm ponds were used to grow catfish and tilapia. Small pastures provided space for raising free range and pastured poultry. Small farm leadership training was conducted in organized groups in collaboration with state small farm associations. The Integrated Pest Management Program emphasized soil sampling, nutrient management and reducing the use of pesticide and herbicide applications that were harmful to the environment. The practices were recommended to small, part-time and limited resource farmers. Risk Management Education courses were conducted for limited resource farmers to increase awareness of the risk associated with agriculture production. In addition, the risk management education course focused on simplified farm record keeping, which encouraged participants to maintain farm records on a continuous basis and improve financial management.

Sustainable Agriculture Programs encouraged and promoted activities that foster sustainable agriculture practices and policies. The programs educated farmers on ways to implement production systems that require the application of low off-farm input and provided opportunities for farmers to grow crops that satisfied consumer demand within environmentally safe conditions.

- (b) The Integrated Pest Management Project provided 36 workshops, on-farm demonstrations, and one-on-one training sessions in Integrated Pest Management for 83 small farmers. Activities included insect and disease identification, scouting, soil analysis, and fertilizer application. Four Risk Management education workshops were held to train farmers in record keeping, production practices, marketing strategies, and farm legal issues. Farm leadership training was conducted during four state small farm association meetings. A Pastured Poultry demonstration was held on two farms. Total enrollment for all sustainable agriculture programs was 139. Of the total enrollment number, 95 increased knowledge of sustainable practices and planned to adopt the practices. Sixty-nine adopted the recommended practices and incorporated them into their farm operations. Of the total participants, 45 farmers made a commitment toward farm maintenance and retention. Twenty-six participants increased their income.

(c) **Source of Federal Fund:** Smith Lever

(d) **Scope of the Impact:** State

(e) **Success stories**

Most counties in the state provide a place where men and women that have been overcome by alcohol and drugs can come for help. In Anderson County, for men, the place is “The Haven of Rest”. Men who seek help and are accepted are housed and fed in a facility located in Anderson. At “Haven of Rest”, the men attend classes on abstaining from drugs and alcohol and their spirituality. After completing the classes and meeting certain requirements, the men can go to a sixty-acre farm six miles from Anderson that is owned by “The Haven of Rest”. Facilities on the

farm, at the organization, house eighteen to twenty men. The men complete a six month and a twelve month tour. After graduation, they can re-enter society. The facility is called “The Transformation Life Center”.

Four years ago, the Extension Agent became familiar with the group and met with the staff recommending the start of a vegetable garden program for the men. They had approximately six hours a day after finishing their classes to devote to the garden. There was ample land and a donated tractor. They immediately accepted the offer to work with the men in the garden project. The facility owners realized they could use the vegetables in the kitchen on the farm and in the facility in Anderson. In the first year, vegetables were grown for domestic uses and had a surplus to sell at the Anderson County Farmers Market.

Last year, the size of the initial garden doubled. Two greenhouses were erected to grow plants for the garden and sell the surplus plants at two thrift stores operated by “The Haven of Rest”. Eighteen months ago, the staff saw the need to increase the housing capacity at the farm, so they started a building program. A dormitory was built with accommodations for approximately forty men. Many of the graduates have re-entered society and became businessmen. Some have entered the ministry, became missionaries and others have gone into the construction business.

**Goal 1: An Agricultural system that is highly competitive in the global economy**

**Key Theme: Integrated Pest Management – (1890)**

**TITLE: Mapping and Isolating Genes in *Drosophila Melanogaster* that Regulate Cuticular Hydrocarbons**

**Project # SCX-420-18-04**

**Project Duration May 2004 – May 2008**

Evolution of resistance to pesticides by insect pests has resulted in both increased use of more toxic pesticides and reduced effectiveness of the pesticides. This can lead to health effects in farm workers and lower food quality for consumers. Integrated pest management techniques strive to supplement traditional pesticide use with non-toxic alternatives. For example, pheromone traps can be used to detect insect pests before significant crop damage is done, and subsequent targeted pesticide application can replace broad scale application. In some cases, pheromones may be used to disrupt mating. However, insects can potentially evolve resistance to non-toxic pheromone control measures, thus reducing both their effectiveness and the confidence farmers and other users place in them.

A genetic analysis has been undertaken to identify the genetic basis for production and response to cuticular hydrocarbons that act as pheromones in the fruit fly, *Drosophila melanogaster*. The fruit fly is genetically, physiologically and behaviorally similar to other fly species that are pests, such as mosquitoes, tsetse flies and med flies. Classical genetic analysis has determined that at least four genes on three chromosomes contribute to the production of an important sex pheromone mix in the species. Each of the genes has relatively small effects on pheromone production. The complex genetic architecture of the pheromone profile of the flies suggests that



it is not subject to simple or speedy evolutionary change, which may occur in the evolution of resistance to insect management techniques.

Emphasis is now being placed on identification of specific genes that control pheromone production and perception. DNA microarrays have been used to identify genetic differences between strains that vary with respect to pheromone production. Candidate genes for pheromone synthesis have been narrowed down to one gene in one previously identified genetic interval and four candidate genes in another interval. Further analysis by PCR will confirm the results of the DNA microarrays.

**IMPACT:** Evidence that pheromone-base control measures could be used on a long term basis without substantial resistance evolving increases the confidence of users in the effectiveness of the methods. Knowledge about the regulation of pheromone genes could lead to more effective pest control measures. This in turn could lead to a reduction in the use of conventional and more toxic control measures, improving the safety of produce, reducing users' exposure to hazardous pesticides and reducing costs. On a molecular level, knowledge about the basis for pheromone production and perception in *Drosophila* could lead to increased capacity to manipulate and control pest species. The research is a form of educational assistance to farmers and other users to aid them in evaluating and adopting integrated pest management techniques. The primary areas of impact for the project are research and education.

**PERSONNEL:** Three to four undergraduate students are usually employed in the researcher's laboratory. One graduate student has been employed for the last two years.

**SUCCESS STORIES:** In the last few years, three recent graduates from South Carolina State who were employed in my laboratory have entered Ph. D. programs at Stanford University, Cornell University and East Carolina University. Another student has entered the Iowa State Veterinary School. The most recent graduate student who was employed in the researcher's laboratory is now an adjunct professor at Delaware State University.

**COLLABORATIONS:** The current project is in collaboration with Dr. Harbinder Singh-Dhillon. Dr. Dhillon helps design and guides a substantial amount of the technical molecular work associated with the project. Dr. Dhillon began the project as an adjunct professor at South Carolina State University, but is now employed in a tenure-track position in the Biology Department at Delaware State University. We expect the collaboration to continue with Dr. Dhillon's new position.

**FUNDING:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program.

**SCOPE OF IMPACT:** State and Nation

**Key Theme: Sustainable Agriculture (1890)**

**TITLE: Dynamic Analysis of the Impact of NAFTA on Technological**

**Changes in South Carolina Agriculture**  
**SCX-522-10-04**

**Program Duration:** January 2005 to January 2008

The primary objective of the proposal is to evaluate the impact of NAFTA on the South Carolina chicken, hog, and tobacco production, trade, and environment. Specifically, the investigation will focus on free trade effects of NAFTA on South Carolina's productivity of chicken, hog, and tobacco trade and the environmental regulations impacts. The study seeks to attain the goal by addressing the following specific objectives.

**Detailed Objectives are:**

- 1) Assess the impact of NAFTA on chicken, hog, and tobacco trade.
- 2) Estimate the productivity and environmental performance improvement in South Carolina agriculture arising from the North American Free Trade Agreement.
- 3) Estimate technological change in the South Carolina chicken, hog, and tobacco sectors under NAFTA.
- 4) Evaluate the economic and environmental impact of alternative trade policy option to maximize NAFTA benefits from the chicken, hog, and tobacco productivity and trade.

**IMPACT:** The chickens, hogs, and tobacco are chosen in the study since the productions are important in the South Carolina economy. Chickens and tobacco production share in agriculture are first and third in cash value as of 2001, respectively. Environmental regulations are crucial in South Carolina hog production, especially. The project will seek to identify the production and productivity gains in the chickens, hogs, and tobacco sectors under NAFTA in South Carolina and provide a comparison with the rest of the South East Region (SER).

**PERSONNEL:** There were four (4) undergraduate students. The majors are in agribusiness, accounting and management.

**PUBLICATIONS/PRESENTATIONS:**

David Karemera (with Benjamin Kim), "Assessing the Forecasting Accuracy of Alternative Models of Nominal Exchange Rates: The Case of Long Memory, in The Journal of Forecasting, 2005a.

David Karemera (and Shunsuke Managi) Exports, Technology, and Environmental Damage in U.S. Agriculture, World Review of Science, Technology and Sustainable Development, Vol. 2 No.2, 2005b, pp 168-190.

David Karemera, (Dilup Birur and Stephen Devados), "Effects of NAFTA on the Tomato Market" Accepted for publication in the Journal of Food Products Marketing, April 2005c.

David Karemera (with Shunsuke Managi), The effects of Environment, Technology, and factor supplies on Agricultural Export", accepted for publication in the, Int. Journal of

Agricultural Resources, Governance and Ecology (IJARGE), VO. 4, no.1 2005d; pp. 45-63.

David Karemera, Viceola Sykes, and John Cole, The Effects of Exchange Rate Volatility on Vegetable Trade Flows; World Review of Science, Technology and Sustainable Development, submitted October 2005.

**COLLABORATIONS:** Dr. Won Koo, Professor of Economics and Director of the Center of Agricultural and Trade Studies, CAPTS; at North Dakota State University. Dr. Won Koo is a consultant to the project activities. He kindly visited South Carolina State University School of Business and held discussion with the PI on the execution of various project activities. Email: Won W. Koo [wkoo@ndsuxext.nodak.edu], PH: 701 231 7448.

GTI, Inc. Global Trade Atlas. The Columbia-based Corporation provides us with information services on global trade data involving the world countries.

USDA: We are working with Dr. Robert Dubman of USDA to verify and compare our data with the NASSA-collected data. A cooperative agreement with USDA is in progress.

**SOURCE OF FEDERAL FUNDS:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program.

**SCOPE OF THE IMPACT:** State

**Key Theme: Creating a Sustainable Environment (1890)**

**TITLE: Identifying Genes Involved in Degrading Aromatic Hydrocarbons from Two Novel Sphingomonas Strains**

**SCX-420-23-04**

**Project Duration: May 2004 to May 2007**

**IMPACT:**

In addition to being hazards to human health, PAHs have a drastic, negative effect on farmland. Traditional agriculture requires millions of pounds of herbicides, insecticides, and fertilizers to foster and protect food and fiber crops. Some of the PAH-containing chemicals remain in soil while others seep into groundwater. Many even retard the growth of crops the farmer wishes to protect. Certain PAH-containing chemicals are also toxic to insects that are beneficial to crop growth. The removal of contaminants such as PAHs from the environment has immediate agricultural advantages. First, it makes the environment safer for the farmer, his family, and the rest of the world. Second, it increases the amount of farmland available for cultivation. And finally, it can increase the amount of crops produced, since contaminants that could retard plant growth will have been eliminated. The process of bioremediation has long been successfully used to remove harmful materials from water supplies, sewage systems and other contaminated resources. According to William Kelly, former head of the Environmental Protection Agency, "Using bioremediation to solve environmental problems could be an environmental breakthrough

of staggering positive dimensions.”

The results obtained in the studies will enable us to identify specific genes involved in the degradation of polycyclic aromatic hydrocarbons by two bacterial strains that, until now, have not been characterized. In addition, the regulatory mechanisms of newly identified genes involved in PAH degradation will be explored. Crucial information regarding the roles/use of the novel microbial strains in bioremediation of acidic and/or cold areas that are contaminated with polycyclic aromatic hydrocarbons (PAHs) will be provided. The strains have been isolated from an extreme environmental environment, as the CZOR’s waste lagoon is acidic and its weather in climate due to excessively cold temperatures. Although isolated from a cold climate, both strains are capable of growing at elevated temperatures. The strains’ ability to grow at elevated temperatures suggests that they might also be used to remediate PAH-contaminated areas do not possess very cold climates, such as farmland. The use of the novel strains bioremediation could produce an increase in the availability of much needed farmland to farmers in numerous locales. Additionally, removing hazardous contaminants through bioremediation would be a cost effective way to substantially reduce a health risk to working farmers. The study has a direct impact environmental cleansing efforts not only in South Carolina, but nation- and worldwide. The project will further the researcher’s understanding of the molecular mechanisms employed by potential bioremediative microorganisms to degrade contaminants that may be found in extreme locales. Once characterized, the microorganisms could be used to remediate contaminated areas. After remediation, the cleansed regions could serve as additional land to be used in agricultural cultivation.

To date, we have utilized a system of transpositional mutagenesis (mini Tn5 transposon) to randomly mutate *Sphingomonas* strain BPH. We have successfully generated 2,150 transconjugants, 3 of which were defective in their ability to degrade the PAH phenanthrene and 3 additional transconjugants that were unable to convert indole to indigo. One of the transconjugants was unable to degrade phenanthrene and unable to convert indole to indigo. Southern blot analysis has determined that in 2 of the phenanthrene utilization mutants genes in the genome have been disrupted. While in the 3<sup>rd</sup> mutant, a gene localized to the strain’s indigenous large plasmid has been disrupted. The subsequent cloning and sequencing of the lesions will allow us to identify new genes involved in the *Sphingomonas* phenanthrene utilization pathway.

Results generated from the project have been presented as a poster at the 2005 American Society for Microbiology General Meeting (Atlanta, Ga, June 5-June 8). The title of the poster presented was “Generation of Phenanthrene Utilization Mutants of a Novel *Sphingomonas* Strain.”

**PERSONNEL:** Two undergraduate students have been employed for the project. They both major in biological science.

**COLLABORATIONS:** The project represents a collaborative effort between South Carolina State University (SCSU) and the Savannah River National Laboratory (SRNL). SCSU has a memorandum of understanding with SRNL to develop research collaborations. During the second and third years of the project, SRNL will be responsible for performing studies targeted towards examining the ability of *Sphingomonas* strains BPH and BPF to remediate PAHs from

contaminated soils.

**SOURCE OF FEDERAL FUNDS:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program

**Key Theme: Enhancing Competitive Ag Production Systems – Farm Safety (1862)**

a. Description

The farm safety project focused on programs and activities designed to reduce on-farm injuries and fatalities. The major areas of concern were safer tractor and equipment operation.

b. Impact:

In 2005, sixteen activities/programs were reported to this project with 404 people completing both formal and non-formal educational programs. An additional 236 individuals received information through “non-program” contacts. Of these contacts, 84 were youth. In 2006, one program was conducted reaching 36 farmers. All reported an increase in knowledge.

c. Source of Federal Funds: Smith Lever 3b&c

d. Scope of Impact: State

**Key Theme - Enhancing Competitive Ag Production Systems - (Risk Management)**

a. Description

Response to educational demands in the area of risk management from South Carolina agribusinesses were to be through: 1) provision of current situation, outlook and management strategy information to the industry; 2) provision of increased training for front-line agents and state specialists; 3) provision of educational programs on market risk management tools available for use by primary producers and agribusinesses; and 4) development, distribution and training on microcomputer-based market risk management decision aids.

b. Impact --

Situation, outlook and management strategy information was developed for SC Agricultural industry. Developed and delivered market management information through the SC Agricultural Outlook Conference (SC Agricultural Expo) February 2004. Materials were provided to County Agriculture Agents for county or cluster commodity programs in the region.

Training for county agents and state specialists: An in-service training for agricultural agents on market risk management techniques and the 2002 Farm Act was incorporated in the Southern Extension Outlook Conference in Atlanta in September 2004. Agents were exposed to advancements in market risk management including developed software

for decision analysis developed for firms facing agricultural market risk educational programs on risk management tools and products available for use by primary producers and agribusinesses: Six multi-state workshops were offered on tactical market risk management procedures with a focus on the current agricultural environment.

Educational programs on risk management tools and products available for use by primary producers and agribusiness: A regional (TN, NC, SC, GA, and FL), in-depth training on beef cattle market risk management was developed and offered to agricultural producers, lenders and other agribusinesses under the auspices of the Southeastern Beef Cattle Marketing School.

Development and distribution of market risk management decision aids and data access: Spreadsheet-based software that reviews the existing marketing alternatives and calculates the potential performance of the strategies under varying market scenarios was improved and further developed. Further, a module on the probability of ex-ante price change derived from current market conditions was incorporated along with portfolio.

In 2005, a total of 48 programs and activities were conducted in the area of risk management with 1,070 participants. Of those participants, 642 indicated an increase in knowledge and 300 adopted or increased the use of recommended practices. An additional 1,259 persons received information through non-program contacts such as phone, office, farm visits.

In 2006, a total of 27 programs were conducted, reaching over 300 participants. Of those participating, 256 indicated an increase in knowledge. An additional 1,006 persons received information through non-program contacts such as phone, office, farm visits.

- c. Source of Federal Funds – Smith Lever 3b&c
- d. Scope of Impact – State

**Key Theme – Enhancing Competitive Ag Production Systems - (Economic Analysis of Enterprises and Technologies)**

- a. Production decisions are no longer based mainly on government commodity program guidelines. Rather they are based on comparative profit potential of feasible alternative enterprises. Additionally, new production technologies are being introduced at a rapid rate. There is increased demand to evaluate new technologies. Extension faculty will be called upon to educate farm managers and others on financial risks – this begins with knowledge of basic enterprise budgeting. From this knowledge base, agribusinesses will be in an improved position to make better production decisions. This, in turn should increase long-term profitability and sustainability.

b. Impact --

Provision of current enterprise analysis information to SC Ag Industry: Approximately 100 enterprise budgets were developed and distributed including on the World Wide Web departmental site. These materials were provided to County Ag Agents for county or cluster commodity programs. Training for county agents and state specialists: training for agricultural agents on enterprise analysis decision aids and techniques was held. Agents were exposed to advancements in enterprise budgeting tools including developed budgets for decision analysis for firms facing agricultural risk. Educational programs on risk management tools and products available for use by primary producers and agribusinesses: County or Cluster workshops were offered on enterprise analysis procedures and issues. Computer-based breakeven spreadsheets were developed and distributed.

A total of 23 programs and activities were conducted which dealt with the area of economic analysis of enterprises and technologies with 342 participants. Of those participants, all indicated an increase in knowledge and 264 actually reported adopting a recommended practice.

c. Source of Federal Funds: Smith Lever 3b&c

d. Scope of Impact: State

**Key Theme – Enhancing Competitive Ag Production Systems - (Business and Financial Management Systems)**

a. Description

The farm business environment demands greater entrepreneurial leadership abilities of farm businessmen. The change in government programs, rapid change in technology, trends toward larger and more sophisticated farm businesses has made it critical that farm managers learn how to develop a successful management system for their farm. It is also critical for Extension to develop these “management/ leadership/entrepreneurial” programs if we are to continue to be viewed by commercial farmers as an effective educational and informational provider. Extension has historically and is currently putting the huge majority of its resources into production-oriented programs. Farmers have found that high production does not guarantee a successful business and continually express their need for management and marketing programs

b. Impact

Executive Farmer Program - This program focuses on how to develop a systematic approach to problem solving and strategic planning. The end product is an Action Business Plan developed with the use of the farm firm’s own financial information. The emphasis is on analyzing the business records; setting business goals and developing an action plan that participants can take home and implement.

A total of 26 programs and activities with 158 participants. Of those participants, 142 indicated an increase in knowledge. One hundred five persons reported that they planned to

use of recommended practices.

SC farmers historically make little use of crop revenue coverage (CRC) insurance relative to farmers in other states. Research is underway to determine why CRC insurance is little used in SC.

c. Source of Federal Funds: Smith Lever 3b&c

d. Scope of Impact: State

### **Key Theme: Expanding Innovative Agricultural Industries**

Turfgrass  
Nutraceuticals

a. Turfgrass and Nutraceuticals

Diseases of bentgrass and ultradwarf bermudagrass greens and overseedings limit success culture for putting green use in the southeastern United States. Research will focus on determining the identification and best management of diseases of importance with the objective of limiting their damage to acceptable levels.

Research will establish invitro cultures of various medicinal plants, investigate their active ingredients and conduct preliminary bioassays to assess biological activity of medicinal plant products or extracts.

Recent interest in plant antioxidants in human health has stimulated the interest in functional phytochemicals of food crops and increased awareness of importance of fresh produce in daily diet. If functional properties can be enhanced, profitability for the producer and health benefits for the consumer can be enhanced.

Research will identify harvesting and postharvest handling protocols and optimize the active principle content of medicinal plants that may be utilized as botanical dietary supplements or as functional foods. Such information is essential for the development of standards and regulations for the industry.

b. Impacts:

New turfgrass cultivars are being released with limited research on their suitability and best management strategies for central and coastal South Carolina. Researchers will investigate the suitability of new turfgrass cultivars and develop environmentally sensitive management practices for central and coastal South Carolina.

#### Patent Disclosures

Extracting and Isolating the Antiviral and Antitumor Constituents of Nigella Sativa



## Patent Applications

A Tumor and Mutation Suppressing Plant Extract

## Technical Contributions

1

- c. Source of Federal Funds – Hatch
- d. Scope of Impact – State

## **GOAL 2: A SAFE AND SECURE FOOD AND FIBER SYSTEM**

### **Key Theme: Food Safety**

#### a. Description

Foodborne illness is recognized as a significant health problem in the United States. While the food supply in the United States is one of the safest in the world, the Centers for Disease Control estimates that 76 million people get sick, more than 300,000 are hospitalized, and 5,000 Americans die each year from foodborne illnesses. Most cases of foodborne illness can be prevented. Proper cooking or processing of food destroys bacteria. In terms of medical costs and productivity losses, foodborne illnesses cost the nation between \$7 billion and \$37 billion, according to estimates from the U.S. Department of Agriculture's Food Safety Inspection Service. Knowledge of safe food handling is needed to help families stay healthy. The best prevention is understanding the safeguards necessary to remain free from foodborne illness.

Sanitation is the process of handling food in ways that are clean and healthy. Using basic sanitation practices when handling food can help prevent bacteria from entering food, which leads to contamination. Food quality and safety involves purchasing, preparing, and storing food using procedures that prevent the spread of bacteria and reduce the risk of foodborne illness. Sanitation and safety are two important aspects of food and nutrition. Foodborne illnesses are a major health and wellness problem. Safe food storage practices prevent foodborne illnesses, reduce food waste, and saves time and money. Control is the key to food safety. Food safety in the home involves three main functions: food handling, food storage, and food preparation.

Counties have made great progress in reaching food service employees with ServSafe employee training. This is a 6- or 10-hour training on how to safely handle food in a food service operation. In addition, media continues to be an important way to reach consumers with food safety and nutrition information. Counties have a wide variety of media opportunities including radio spots, development of press packets on specific nutrition subjects, new articles, and TV programs.

Nanotechnology will be used to develop rapid and simple biosensors to detect the presence of intentional and ubiquitous toxic agents in food and water. Additionally, active films will be developed to reduce the risk from these toxic agents by using natural materials. Researchers are seeking 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.

Marination, irradiation and packaging systems will be examined for enhancing the safety and shelf life of raw and further processed poultry products.

b. Impact

A total of 916 food handlers participated in a 10-hour certification course in food handling and passed an exam to receive a certificate. Counties report that while teaching ServSafe \$2,575 was generated in program support. Counties conducted 50 food safety education programs Farm to Processing, including Biotechnology, reaching 607 people. Of this number, 606 reported an increase in knowledge and 87 adopted a recommended practice.

Food Safety and Nutrition Educators conducted 383 educational programs for the general public in the area of food safety and nutrition, reaching 6,107 adults. Of the adults participating in the educational programs, 4,639 reported increased knowledge; 1,877 reported the intent to adopt practices; and, 347 reported that they had adopted practices because of participation in the educational program.

Educators conducted 412 educational programs through the media. Media press kits (750) were distributed to media channels throughout the state. Print media was one outlet, with 13,767 column inches of information on food safety and nutrition appearing in newspapers and other publications. In addition, educators provided 804 minutes of radio airtime and 1,009 minutes of television airtime in the area of food safety and nutrition.

Counties conducted 112 food handling educational programs reaching 1,333 people. Of this number, 1,295 reported an increase in knowledge, 925 planned to adopt practices, and 50 reported adopting a recommended practice. There were 25 new or value-added food products or packages entering the market as a result of the program.

Food Safety can be enhanced by presenting information on the transmission of bacteria from surfaces to food consumers as safe food handling is supported by applied research results. These results from research will be useful in assessing 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.

Patent Disclosures:

A Model to Prevent Plugging of Parallel Tube Flow Devices

Friendly Polymeric Composites Woven to Produce Textile Materials that can be Formed from the Composites.

Patents Filed

Composite Polymeric Materials from Renewable Resources

Technical Contributions:

2

- c. Source of Federal Funds - Smith Lever 3b&c and Hatch
- d. Scope of Impact – State and Regional

**Key Theme: Food Safety (1890)**

- a. Many people do not think about food safety until a food-related illness affects them or a family member. While the food supply in the United States is one of the safest in the world, the Centers for Disease Control estimates that 76 million people get sick, more than 300,000 are hospitalized, and 5,000 Americans die each year from foodborne illnesses. Preventing foodborne illness and death remains a major public health challenge. The food safety workshop is a one-hour training session, utilizing the FF-NEWS (Families First - Nutrition Education and Wellness Systems) curriculum, which incorporates concepts about cleanliness and temperature controls. Participants are asked to discuss foodborne illnesses and techniques for thawing and properly cooling food. Participants also learn about the most common foodborne pathogens, sanitation and sterilization practices and the importance of hand washing.
- b. Impacts: Participants at the Calhoun County Council on Aging, Brookdale Elementary School, Sheridan Elementary School, William J. Clark Middle School, the Allendale County Department of Health and Environmental Control, Hampton County Farmer's Market, the Jasper County Boys and Girls Club, Mt. Tabor Baptist Church, and Dillon County Council on Aging were lead in group discussions about food safety. A total of 299 youth and adults participated in 51 workshops. Two hundred eight participants increased their knowledge about food safety, security, and quality. There were 187 participants that demonstrated proper food safety and sanitation practices. One hundred forty-five participants promoted proper food safety practices within the community.
- c. Source of Federal Funds - Smith - Lever
- d. Scope of Impact - State

## **Key Theme: Food Safety (1890)**

### **TITLE: Historical Patterns in the Formulation and Implementation of U.S. Nutrition Policies in South Carolina**

**Project#: SCX-209-01-05 Project Duration: October 2005 – September 2009**

The study addresses the difficulties that have been encountered in transmitting federal nutrition guidelines to the South Carolina public since the late-nineteenth century (time of initiation of federal nutrition guidelines). Important difficulties may stem from the cultural habits and conventions that influenced and continue to influence diet and exercise patterns in the state. Historically, the patterns can be assessed through an analysis of diaries, commentaries, letters, and cookbooks authored by or written for South Carolinians from the late-nineteenth century on. During the initial phase of the study, many of the sources have been identified and classified (particularly for the period prior to World War II). For the systematic, qualitative analysis of the sources, we have begun to use NVIVO (a computer program, which allows the electronic cross-referencing of qualitative data, such as: people, recipes, comments, advice, food availability, attitudes toward eating & exercise, etc.). The analysis will help to ascertain the historical development of eating habits, entertainment customs, food preferences and food availability, and attitudes toward physical activity in the state and will allow a comparison between the patterns and federal nutrition guidelines issued through the century.

**IMPACT:** Despite the increasing sophistication in federal nutrition policy over the past century, the state of public health in the U.S. is, today, declining largely because the connection between health and nutrition is misunderstood or ignored by too many Americans. The project examines, for the state of South Carolina, the history of the implementation particularly the sources of resistance/difficulties encountered in the process. An historical approach helps establish a proper context for the currently raging obesity debate, and helps to identify long-standing problems and barriers to the implementation of governmental nutrition guidelines in the state.

#### **PERSONNEL:**

- Roxanne Sargeant, Psychology major, graduated from SCSU in May, 2006
  - Was accepted to graduate school at Bowling Green State University in the Fall semester, 2006
  - Is pursuing a Masters degree in Public Administration
- Lakenna McCrorey, senior History major
  - Was selected for an internship at the SC State Museum in Columbia in January 2007
  - Is preparing for a career as museum curator
- Brittany Walker, junior English major
  - Is my current assistant on the project

**COLLABORATIONS:** None

**FUNDING:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program

## SCOPE OF IMPACT: State

**Key Theme: Agricultural Biosecurity-** Plant Disease and Pest Surveillance & Detection and Man-Made or Natural Disaster Preparedness, Prevention, Mitigation, and Recovery for Animals

a. Description

The biosecurity project for extension and outreach programs focused on improving state, regional, and local capabilities to detect, recognize, diagnose and respond to agroterrorism foreign animal diseases, foreign plant diseases, or other disasters that threaten agriculture or food safety. The biosecurity program this year continued work to develop and establish both Regional and County Animal/Agriculture Response Teams (CART). In addition to CART development, the initiative conducted numerous trainings on biosecurity issues, animal and plant disease recognition and identification, and mitigation of agroterrorist attacks.

- b. Impacts: Extension personnel working in Biosecurity reported 58 educational programs and activities conducted with 786 participants. Of these, 751 reported increased knowledge and 82 planned to adopt practices that they learned.

Specific activities conducted during 2005-06:

Along with the County Emergency Manager, conducted a review of county preparedness in the agriculture area for Greenwood County.

Participated in a food security crisis management exercise during a meeting of the SC Food Safety Council.

Teleconferences with commercial vegetable handlers regarding packinghouse security.

Conducted a review of security measures in six commercial fruit and vegetable operations in the state of Florida.

Biosecurity and Poultry testing training and Foot and Mouth Tabletop training and exercise for 95 state officials and industry personnel.

Officials from six agencies attended the Agroterrorism Awareness training and learned the importance of protecting the SC agriculture, how to practice biosecure techniques, and how to respond after a terrorist or natural disaster.

- 46 County CARTs were established and equipped with response gear and supplies to respond to agriculture disasters or terrorist activities.
- 6 regional CARTs were established and equipped to assist County CARTs in emergency situations.
- Approximately \$500,000 was spent on equipping both the County and Regional CARTs
- 333 days were reported by county extension agents as having worked within the biosecurity initiative.

- c. Source of Federal Funds Smith Lever 3b&c and Hatch

- d. Scope of Impact State and Regional

## **GOAL 3: A HEALTHY, WELL NURISHED POPULATION**

### **Key Theme: Nutrition and Health**

#### Program Components

Food and Nutrition Education  
Nutrition, Education, Diet and Health

### **Key Theme: Nutrition and Health**

a. Description

The nutrition education programs focused on the topic of preventing chronic disease through eating according to the MyPyramid and the Dietary Guidelines for Americans. A variety of methods were used including educational lessons, day camps, demonstrations, workshops, health fairs, school enrichment programs, food demonstrations, exhibits and media.

b. Impact

EFNEP Nutrition Educator Assistants (NEAs) conducted 3,825 educational programs in nutrition and health reaching 13,377 adults; 10,873 of these reported gaining knowledge, 5,573 planned to adopt a recommended practice, and 2,637 reported adopting a recommended practice. There were 2,139 hours of volunteer time contributed to EFNEP.

During FY 06, when the adult participants entered the program, only 13 percent reported diets that contained foods from all five food groups. This percentage increased to almost 36 percent by the time participants graduated from the program. A positive change in at least one food group was noted in 92 percent of participants graduating from the program. EFNEP participants also show behavior changes that translate into significant improvements in daily living skills.

Results from a survey taken at the beginning and at the end of the program show that 94 percent of participants showed improvement in one or more nutrition practices (i.e., planning meals, making healthy food choices, preparing meals without adding salt, reading nutrition labels, or having children eat breakfast); 93 percent of participants showed improvement in one or more food resource management practices (i.e., planning meals, comparing prices, using grocery lists, or not running out of food); and 77 percent of participants showed improvement in one or more food safety practices (i.e., thawing and storing foods properly).

#### *Impacts for EFNEP Food and Nutrition Education for Youth include:*

EFNEP Nutrition Educator Assistants (NEAs) conducted 4,033 educational programs in nutrition and health reaching 57,876 children and youth. There were 6,001 hours of volunteer time contributed to 4-H EFNEP.

Of the children and youth surveyed, 39,635 of these reported gaining knowledge, 18,136 planned to adopt a recommended practice, and 6,268 reported adopting a recommended practice.

Food Safety and Nutrition Educators conducted 383 educational programs for the general public in the area of food safety and nutrition, reaching 6,107 adults. Of the adults participating in the educational programs, 4,639 reported increased knowledge; 1,877 reported the intent to adopt practices; and, 347 reported that they had adopted practices because of participation in the educational program.

Educators conducted 412 educational programs through the media. Media press kits (750) were distributed to media channels throughout the state. Print media was one outlet, with 13,767 column inches of information on food safety and nutrition appearing in newspapers and other publications. In addition, educators provided 804 minutes of radio airtime and 1,009 minutes of television airtime in the area of food safety and nutrition.

Counties conducted 112 food handling educational programs reaching 1,333 people. Of this number, 1,295 reported an increase in knowledge, 925 planned to adopt practices, and 50 reported adopting a recommended practice. There were 25 new or value-added food products or packages entering the market as a result of the program.

- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact – State

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Technical Contributions:

1

- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact – State

**Key Theme: Nutrition and Health (1890)**

- a. Eating right is among the cornerstones of health. Today, proper nutrition is more important than ever. At least four of the 10 leading causes of death in the United States (heart disease, cancer, stroke, and diabetes) are directly related to the way we eat. However, food alone is not the key to a longer and healthier life. Proper nutrition should be a part of an overall healthy lifestyle, which also includes regular exercise, not smoking or drinking alcohol excessively, stress management, and limiting exposure to environmental hazards. The healthy eating workshop is a one-hour training session about the importance of healthy eating and daily healthy food choices. Participants learned about My Pyramid, label reading, comparison shopping, portion control, water intake,

and exercise. They also planted fresh fruits and vegetables. A Health Olympic Field Day was held to emphasize the importance of exercise in a healthy lifestyle.

- b. Impact: Participants at Whittaker Elementary School, the YMCA, Marshall Elementary School, Orangeburg Area Development Center, Orangeburg Boys and Girls Club, Ervington Baptist Church, Second Baptist Church, Project TEAM UP, North Orangeburg United Methodist Church, Orangeburg Consolidated School District Five - Positive Opportunities for Parents, Voorhees College, Jordan Baptist Church, Orangeburg, Calhoun, Allendale, and Bamberg Community Action Agency, Orangeburg Department of Health and Environmental Control, Orangeburg Consolidated School District Three Mother/Daughter Conference, St. Paul Baptist Church, Calhoun County Mother/Daughter Conference, Bamberg Job Corps, Orangeburg County Mental Health Department, Manning Elementary School, Bowman Elementary School, William J. Clark Middle School, Paxville Community Development Center, Allendale Department of Health and Environmental Control, Hampton County Council on Aging, Colleton County Head Start, University of South Carolina - Salkehatchie, Jasper County Boys and Girls Club, Hampton County Farmer's Market, Marion County Council on Aging, and Darlington County Council on Aging were lead in group discussions about healthy eating. A total of 1455 children and adults participated in 175 workshops. Of the participants, 1,382 reported increased knowledge about nutrition, diet, and health. There were 1,217 participants that adopted healthy lifestyle practices and 977 participants that adopted dietary and nutritional assessment plans. A total of 150 adults participated in the Olympic Health Field Day.
- c. Source of Federal Funds - Smith - Lever
- d. Scope of Impact - State
- a. Once people have diabetes, they face a lifetime responsibility. Although treatment options have greatly improved, there still is no cure. Diabetes requires daily discipline to prevent its serious complications, such as blindness, amputation, neuropathy, and heart disease. With proper management, people with diabetes can lead vital, healthy lives. The diabetes workshop, utilizing the FF-NEWS curriculum, is a one-hour training session about the importance of diet and exercise in the treatment and maintenance of diabetes. Participants learned the definition of diabetes, symptoms of the disease and methods of treatment.
- b. Impacts: Participants at West Minister Presbyterian Church, Sergeant Jasper Park, Morris Holmes Park, Walterboro Recreation Center, Estill Fire Station, Burton Wells Leisure Center, Lowcountry Healthcare System, and Malboro Park Hospital learned about the treatment and maintenance of diabetes. A total of 505 adults participated in 48 workshops. Of the number of participants, 472 reported they increased their knowledge about diabetes and 394 adopted healthy eating practices.
- c. Source of Funds - Smith-Lever



- d. Scope of Impact - State
  - a. The EFNEP program is designed to assist limited resource audiences in acquiring the knowledge, skills, attitudes and change behavior necessary for nutritionally sound diets. The program also contributed to the personal development and improvement of the total family diet and nutritional well-being. Youth topics include nutrition, food preparation, food safety, fitness, avoidance of substance abuse and other related health topics. The EFNEP workshop, utilizing the FF-NEWS curriculum, is a one-hour training session about the importance of a healthy diet and regular physical activity. Participants learn about My Pyramid and assist with food demonstrations.
  - b. Impact: Participants at Whittaker Elementary School, the YMCA Summer Camp, Marshall Elementary School, Orangeburg Area Development Center, and the Orangeburg Boys and Girls Club learned about the importance of fresh fruits and vegetables for a healthy lifestyle. A total of 217 youth participated in 30 workshops. One hundred eighty seven reported they increased their knowledge about nutrition and health. One hundred sixty eight stated they would try to incorporate fresh fruits and vegetables into their daily diet. A total of 136 participants stated they would try at least 2 new fruits or vegetables per month.
  - c. Source of Funds - Smith-Lever
  - d. Scope of Impact - State

**GOAL 4: GREATER HARMONY BETWEEN AGRICULTURE AND THE ENVIRONMENT**

**Key Theme: Creating a Sustainable Environment**

Program Components

- Water Quality
- Natural Resources and the Environment
- Alternative Income Opportunities for Landowners
- Horticulture and Home Based Plant Health Management
- Reducing Impact of Animal Agriculture on the Environment
- Pesticide Safety Education
- Household and Structural Pest Control
- Sustainable Forest Management and Environmental Enhancement
- Longleaf Pine
- Master Tree Farmer/Master Woodland Owner
- Forest Resource Management

**Key Theme: Creating a Sustainable Environment: Water Quality**

**a. Description**

Water quality programs offer SC residents tools for self assessment of their personal contributions to water pollution. Demand for these programs continues to grow. Community-supported and field based educational programs also will provide important information to children and adults about their local water resources and teaches them field, analytical and critical thinking skills needed to intelligently participate in making decisions that affect the quality of these aquatic environments. Ecotourism or nature-based tourism has become the fastest growing section of the tourism industry. However, a significant barrier to development of ecotourism or nature-based 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 project's objectives include educating agricultural producers to increase acceptance of BMPs that protect and improve water quality, educating homeowners to increase acceptance of BMPs that prevent water pollution from the homestead, educating the public on how land-use practices impact the quality and quantity of water in urban streams. These objectives will be met by developing and delivering educational programming on stream restoration and water quality protection, developing participation in water quality volunteer groups, and training county volunteers to deliver water quality programming, and designing, demonstrate and promote the installation of riparian buffers and other environmentally appropriate plantings to protect water quality.

During this program year 3741 people participated in 225 workshops and activities with 3,047 reporting an increase in knowledge.

**b. Impacts:**

Highlights include two workshops: 1) one held on Daufuskie Island in response to the need for natural resource-based planning education as the island is developed for residential and commercial use; and 2) a workshop called Coastal Legacy given by COSEE-SE for K-7 teachers to learn about barrier island culture and environmental science to incorporate these lessons into their curricula.

A Bioretention Design Workshop, had 49 participants, all of which increased knowledge, and a majority plan to adopt practices learned in the workshop. Other programs focused on nonpoint source pollution awareness and stormwater education programs, which almost all participants increased knowledge and many intend to adopt practices.

An Upstate TMDL implementation project produced water quality improvements. South Carolina's first 319-funded TMDL implementation project was completed in December 2005. This three-year project in the Coneross Creek and Beaverdam Creek watersheds was designed to implement a fecal coliform TMDL by working with homeowners and the agricultural community to install Best Management Practices (BMPs). The project was a partnership between Clemson University, USDA Natural Resources Conservation Service, Oconee County Soil and Water Conservation District and the Oconee County Cattlemen's Association. Project partners provided extensive community education, repaired 38 rural septic systems and installed 80 agricultural BMPs including planting buffers and field borders, fencing cattle from creeks and providing alternative water sources, and building compost facilities, The project is now showing measurable success. SCDHEC

monitors three sites within the two watersheds. Current data show that all three sites are now meeting water quality standards. The TMDL was written because these stations were placed on the 303(d) list. The stations were placed on the 303(d) list because they were not meeting water quality standards. Now that water quality standards are being attained, the goals of the Clean Water Act under Section 303(d) have been met. Monitoring will continue at all three stations to ensure that standards are maintained. In addition to the obvious water quality benefits, the Coneross Creek/Beaverdam Creek TMDL implementation project has resulted in many physical, economic and social benefits to the participants. Agricultural producers have been very pleased with the practices installed. In many cases, these practices have complemented the particular livestock operation and enabled them to move forward with their business plans.

Technical Contributions:

10

- c. Source of Federal Funds: Smith Lever 3b&c and Hatch
- d. Scope of Impact: State and Regional

**Key Theme: Creating a Sustainable Environment (1890)**

**TITLE: Chemical Standardization and Preparation of Biosubstances**

**Project #: SCX-420-20-00**

**Project Duration:** January 2005 - January 2008

Herbal remedies are becoming increasingly popular in the USA. Perhaps the most popular of all are preparations from *Echinacea*, many species of which grow wild and now farmers are growing them. *Echinacea* products are claimed to raise opsonic index, the antibody that renders bacteria and other cells susceptible to phagocytosis, thus demonstrating antiviral and antibiotic properties. In addition, it is thought that the preparations are side reactions free. However, there are problems with the *Echinacea* preparations displayed on the shelves of the drugstores. The labels on the bottles do not provide the names and the amounts of bioactive materials and do not list possible side effects. Obviously, chemical standardization of biosubstances in *Echinacea* preparations should be done for the benefit of the consumers, growers, processors, and medical practitioners. In this project, three species of *Echinacea* (popular in USA and also investigated by some researchers) will be grown under controlled conditions. Biosubstances will be isolated from various parts of the plant. Standardization method for the biosubstances were developed using the state-of-the-art instrumentation. In addition, the project has developed conditions for growing 2-4 liters scale *Echinacea* cell culture, isolate biosubstances from the cells, and standardize them. Isolation of biosubstances form cell culture has fewer complexities and the final products having consistent composition. Information on cultivation of the *Echinacea* will be disseminated to farmers.

**IMPACT:** Small farmers are able to grow *Echinacea* and sell them to companies that manufacture herbal preparations at much higher prices than they earn by selling traditional

produces. Instead of corn or soybean, they are able to raise several herbal plants that will be useful for consumption in the United States, but also exportable to other nations. The project provided label information for herbal products so they could eventually be used as prescription drugs with none or little side effects and perhaps less habit forming to users. With proper content information available, meaningful clinical research can be conducted for future development of herbal medicine.

**PERSONNEL:** There were no students working on the project during the report time.

**COLLABORATION:** Clemson University Extension at Charleston, SC provided the Echinacea samples for the project.

**SOURCE OF FEDERAL FUNDS:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program

**SCOPE OF IMPACT:** State, National and International

**Key Theme: Creating Sustainable Environment**

**TITLE: Syntheses In Solution And Supercritical Co<sub>2</sub>, Solution Properties And Thermal Characteristics Of Poly(Dialkylphenyl Acrylate)S**

**Project# SCX-420-24-04**

**Project Duration: January 2005 – January 2010**

The project deals with synthesis and characterization of new polymers types of dialkylphenyl acrylate. The goal is to prepare a series of monomers in which the bulkiness of the side chains systematically varied, to polymerize the monomers in bulk, solution and supercritical carbon dioxide and characterize them. Since the beginning (May 16, 2005), one polymer has been synthesized and partially characterized. So far (September 30, 2006), the results have been presented in more than a dozen scientific meetings and conferences.

**IMPACT:** The polymer synthesis and characterization is a new area of research, development and study in South Carolina State University and Evans Allen 1890 Research and Extension. The impact to students pursuing BS degrees in chemistry, biology, physics and engineering technology by exposing them to hands-on-experience in synthesis and characterization of polymeric materials and validating related theories by enhancing student learning, their retention and encourage them to pursue graduate studies. Four undergraduate students and a lab technician are working with the project.

The research environment created with the project attracts the partnership of industries and other research institutions. So far, we have had two institutions that required more information about the research.

**PERSONNEL:** There are four undergraduate students and one full time research assistant.

**COLLABORATIONS:** None

**SUCCESS STORIES:**

One of the three monomers and polymers studied in the project has been successfully synthesized and characterized. The researchers are in the process of synthesizing the second and third polymers.

## **PUBLICATIONS/PRESENTATIONS:**

The following are the published abstracts:

Hamidi Vadeghani, A. and Hamidi, N. 2006. Partial specific volume and thermal expansion of poly(3,5-dimethylphenyl acrylate) in chloroform. The 58th Southeast Regional Meeting of American Chemical Society, Augusta, GA. <http://acs.confex.com/acs/serm06/techprogram/P37368.HTM>

Mack, A., McKnight, A., Brown, T., Enwright, K. and Hamidi, N. 2006. Density and excess volume of ethyl acetate and triethylamine mixtures from 10°C to 46°. The 58th Southeast Regional Meeting of American Chemical Society, Augusta, GA, <http://acs.confex.com/acs/serm06/techprogram/P36649.HTM>

Hamidi Vadeghani, B., Enwright, T. and Hamidi, N. 2006. Synthesis and NMR characteristics of 3,5-dichlorophenyl acrylate. The 58th Southeast Regional Meeting of American Chemical Society, Augusta, GA, <http://acs.confex.com/acs/serm06/techprogram/P36314.HTM>

Hamidi, N., Hamidi-Vadeghani, A., Bowrin, K., Bannister, C., McKnight, A. and Mack, A., 2006. Partial Specific Volume and Thermal Expansion of Poly(3,5-dimethylphenyl acrylate) in Chloroform. 61st Northwest Regional Meeting of American Chemical Society, Reno, NV

Hamidi Vadeghani, A., Dawson, V., Ashley, A.V. and Hamidi, N. 2006. Synthesis and Characterization of 3,5-Dimethylphenyl Acrylate. 1890 Land-Grant Universities, Association of Research Directors, Inc.; 14th Biennial Research Symposium; Atlanta, Georgia. <http://www.1890landgrantard.org/ard2006/program.htm>

Hamidi, N. 2006. Conformational Rigidity of Poly(2,6-Di-iso-Propylphenyl Methacrylate) in Diluted Solutions. 61st Northwest Regional Meeting of American Chemical Society, Reno/Sparks, NV

Hamidi, N. 2006. Synthesis and Thermal Stability of Poly(3,5-dimethylphenylacrylate). 14th Biennial Research Symposium; Atlanta, Georgia. [Http://www.1890landgrantard.org/ard2006/program.htm](http://www.1890landgrantard.org/ard2006/program.htm)

- Three posters were represented at the Research Forum held at the University of South Carolina in Columbia SC. Amid Hamidi Vadeghani, Ashly V. Mack, Ciera Banister, Kyl Bowrin and Nasrollah Hamidi (PI) participated in the event (October 2006). The students received certification for their presentations.
- **Nasrollah Hamidi** “Syntheses in Solution and Supercritical CO<sub>2</sub>, Solution Properties and Thermal Characteristics of Poly(Dialkylphenyl Acrylate)s” 1890 Research Forum, South Carolina State University, Orangeburg, SC November 28, 2006.
- Nasrollah Hamidi “Syntheses in Solution and Supercritical CO<sub>2</sub>, Solution Properties and Thermal Characteristics of Poly(Dialkylphenyl Acrylate)s” Research Symposium, South Carolina State University, College of Science, Mathematics Engineering Technology, Orangeburg, SC, February 16, 2006 .

- STEM-DAY -- eight groups of high-school students visited the lab. The visitors were introduced to the usage of polymers, how to make polymers and how to characterize them.

**SOURCE OF FEDERAL FUNDS:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program

**SCOPE OF THE IMPACT:** State and Nation

**Key Theme – Creating a Sustainable Environment (1890)**

**TITLE: Soybean Candles for Healthy Life and Well-Being**  
**SCX-420-25-05** **Project Duration: January 2006 - January 2009**

Soybean products are very essential to the world agriculture enterprise because of the variety of applications in today's consumer market. Because soybeans are mass produced in the world and high in protein, they are used as a renewable food source for millions of people. Many consumer items such as printing ink, body and skin care products, hair care products, cleaning products, candles, etc., has resulted because of soybean research.

One of the primary advantages of candles made from soy wax is that the soot emitted is considerably less compared to those made from paraffin wax. The soot from paraffin candles may cause damage to walls, ceilings, vents, curtains or blinds and even carpets and other areas of the home.

Since soybeans are a renewable and biodegradable resource, it is a prime source for candle wax. Because of the abundance of the agricultural product, new uses of soybeans are being researched.

The American agricultural economy is greatly benefited by the production and burning of soy wax candles. For example, by replacing paraffin wax with soy wax, an estimated 60 million pounds of soybeans would be required for annual candle production. The requirement for more soybeans will have a direct economic impact on soybean farmers as well as a health and environmental impact in the country.

The burning of soy candles in homes and cars address the real issue, which is the health of American and global consumers. The burning of paraffin candle gives off more toxic fumes than soy candles which may be harmful to health.

### **Experimental**

The project was funded January 2006. Since then, the researchers have been preparing the materials and equipments needed for the project. Because of the nature of the project and the requirement that candles are being tested by burning them for long hours, a lab needed to be designed for the purpose.

The research examines candles made from soybean wax with respect to the amount of soot produced for a given amount of burning time and compares them with emission of candles made from paraffin wax with the same candle specifications. Densitometers are used to determine the amount of emitted particles in each one of the products.

**IMPACT:** Health and well being of human beings are the most important reason for studying the project. Billions of candles are sold each year in which people enjoy burning them inside their homes for its look and beauty. They are, however for the most part, unaware of the harmful emissions and products that might be concentrated indoors and inhaled innocently. Burning candles and incense could be the source of particulate matters. Certain brands of incense are suspected to cause skin irritation and exposure to incense smoke has been linked with some illnesses. Candles and incenses imported to the US are mainly from China, Hong Kong, Taiwan, Thailand, India, Mexico, UK, Canada and other places. It is, therefore, reasonable to suspect uncontrolled supply of the imports. Economically speaking, the study of soybean candles could provide not just safer products, but would build a renewable and sustainable source of income for many farmers and candle industry.

The harmful products that could concentrate inside the home can be summarized as many illnesses, including cancer and asthma. Contact dermatitis has been related to exposure to incense smoke. Considering the number of candles that are used daily in the whole world, the research project will be of utmost importance for the health of mankind. The economic impact of the research for local farmers and residents is very important because farmers could produce more products and improve their living standards.

**PERSONNEL:** Two undergraduate students (Saba Vadeghani physics major) and (Shauntay Brown biology major) are assisting the project.

**COLLABORATION:** None

**SOURCE OF FEDERAL FUNDS:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program

**SCOPE OF IMPACT:** State and Nation

### **Key Theme: Creating Sustainable Environment - Natural Resources and the Environment**

#### a. Description

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. A total of 1,866 people participated in 111 programs such as Recreation and Tourism, Master Wildlife/Master Naturalist, Urban Wildlife, Nuisance Species, and Wildlife Conservation.

#### b. Impact:

1,591 reported that they increase knowledge as a result of their participation in these programs. A list with specific impacts is below:

### Recreation and Tourism

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 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. This project's objectives include providing educational programming on the interaction of water quality and recreation and tourism activities, such as paddle sports, swimming and fishing, promoting environmentally sound natural resource recreation and tourism opportunities in South Carolina, demonstrating stream-monitoring methodologies that are practicable, efficacious, and efficient in remote locations used by recreational horses, and providing on-site workshops in trail design, installation, and evaluation and water quality assessment of horse trail impacts.

46 people participated in 16 programs and activities this past year.

Highlights include development of agriculture/environmental educational trail at the Pee Dee REC, working with communities to develop outdoor recreational programs, and working with landowners to develop wildlife viewing plots.

### Master Wildlife/Master Naturalist

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. 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. 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. This project's objectives include delivering three Master Wildlifer shortcourses to forest and farm owners in South Carolina, exploring alternative methods of delivering Master Wildlifer, primarily over satellite and as a web-based course, developing a statewide South Carolina Master Naturalist program, developing local chapters and conduct South Carolina Master Naturalist training programs, developing a standardized basic curriculum for training South Carolina Master Naturalists, and using trained volunteers to promote wildlife management programs among their peers. 107 people participated in 12 programs and other activities during the past year.



## **Urban Wildlife**

This project's objectives include examining urban wildlife planning issues from the macro level-regions, states, counties, and cities-to the individual site, educating involved stakeholders of the diverse issues and concerns involved in attracting and/or managing existing urban/suburban wildlife, encouraging 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, and assisting and educating people about the development and implementation of urban wildlife plans. 601 people participated in 23 workshops and other activities during the past year.

Highlights include working with the Quality Deer Management Association staff to further discuss the QDM classes to be offered in 2006 and writing technical guidelines for delivery and logistics of the program and planning and developing an invasive species workshop.

## **Nuisance Species**

Nuisance species, both plant and animal, cause significant economic, health and human safety concerns in South Carolina. Unfortunately there is a lack 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). Additionally, dam building and flooding by beavers can cause tremendous degradation of water quality in watersheds from siltation as well as flooding problems in waste water treatment facilities.

Aquatic nuisance plant species, including several state and federally listed illegal species, are significant problems in the over 70,000 private ponds and lakes in South Carolina. Aquatic weeds have adverse economic and environmental effects on production agriculture 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. This project's objectives include conducting pond clinics to educate landowners/managers and Aquatic Pesticide Applicators about the most up-to-date control recommendations for aquatic weed management, furnishing up-to-date information to landowners and managers concerning aquatic weed management and control recommendations, and providing training to public and private sector natural resource professionals. 932 people participated in 51 workshops and other activities during the past year.

Highlights include work with representatives of USDA NRCS and APHIS WS and the Barnwell county airport to discuss possible solutions to wildlife on the runways that endanger aircraft, two presentations at the Carolinas Beach Vitex Symposium, one concerning herbicide research and another concerning the eradication grant.

## **Wildlife Conservation**

South Carolina is blessed with an abundance of wildlife resources that enhance the quality of our lives, 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 dollars a year to individual counties. Because the Palmetto State is among the fastest growing states 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. Programs aimed at providing landowners and natural resource managers with the tools, information and economic incentives to maintain and enhance lands for wildlife are the focus of this project. This project's objectives include developing and delivering educational programs and products on wildlife conservation and management on private lands including web-based educational programs, exploring other innovative techniques to deliver educational programs on wildlife conservation and management on private lands, and incorporating a wildlife conservation and management educational outreach component in undergraduate and graduate education. 180 people participated in 9 workshops and other activities during the past year.

Highlights include two programs to homeowner's associations on rice trunks and managing impoundments for waterfowl, wading birds, diving birds, and fish and other wildlife, and to discuss why it is necessary to remove trees on the causeway leading into a subdivision. Assistance also was provided for establishing a permanent food plot demo in Walterboro and private land holdings in Jasper County were visited to provide advice on quail, deer, and/or turkey management.

In addition, the following impacts were made in research in Natural Resources and the Environment:

Determined the amount of tree canopy changes in the Interstate 85 corridor over the last 20 years and quantified the impact on air pollution.

Confirmed that a complex of hydrilla (water weed) and blue-green algae causes AVM, a deadly brain disease, in bald eagles and waterfowl.

Growth and control research began for Beach Vitex, a plant species that may become a problem for the SC coast

When point or nonpoint source pollutants resulting from agricultural or urban activities enter soils and/or other subsurface systems, their concentrations can often be diminished by several naturally-occurring mechanisms including biological, physical, and/or chemical processes. It is necessary to gain a better understanding of the contribution made by abiotic electron-mediated reduction reactions in the overall natural attenuation of selected organic and inorganic point/non-point source pollutants.

- c. Source of Federal Funds - Smith Lever 3b&c and Hatch
- d. Scope of Impact – State

**Key Theme: Creating Sustainable Environment-Alternative Income Opportunities for Landowners**

- a. Description  
Agricultural commodity sales and markets have been depressed for quite some time. Additionally, the length of time between investments in timber production and revenue from timber sales is of an long-term. Consequently, farm and forest landowners in South Carolina are seeking ways to diversify land use and management in an effort to provide additional income from existing natural resources on their land. In particular, existing water impoundments (i.e beaver ponds, farm and woods ponds) can be enhanced by management to improve both water quality and habitat for wetland species (amphibians, reptiles, wading birds, and waterfowl). Some species, like waterfowl, can also provide recreational hunting opportunities and additional income for landowners. This project's objectives include developing an in-service training program for Extension agents on alternative income opportunities from natural resources, with a focus on wildlife resources (with an emphasis on aquatic and wetlands species) and developing a program/workshop for South Carolina farmers and forest landowners on alternative income opportunities from natural resources, with an emphasis on wildlife resources (with an emphasis on aquatic and wetlands species).
- b. Impacts: 733 people participated in 28 workshops and other activities during the past year. 696 persons reported an increase in knowledge as a result of their participation in programs. Almost 400 have adopted a new practice. Highlights include participation in farmer's market revitalization efforts and developing information about the use of waste wood as an alternative fuel source.

- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact – State

**Key Theme: Creating Sustainable Environment - Horticulture and Home Based Plant Health Management**

- a. Description  
Urban landscapes should be aesthetically pleasing, diverse, sustainable and environmentally friendly. This initiative is providing education to horticulture service providers (i.e. arborists, landscape designers, private and public grounds workers, urban foresters, and employees of landscape maintenance companies, landscape installation

companies, tree service companies, and garden centers), Master Gardeners, and consumers on environmentally sound horticultural practices (i.e. plant identification, selection, culture, pest identification, and integrated pest management) to improve the economic value of their homes and neighborhoods in a socially acceptable manner that does not contaminate the environment with excess fertilizer, inappropriate pesticides, or exotic plants that would place human and environmental health at risk. The plant health area focused on three major projects during FY 2006. These projects were Environmental Horticulture Education for Horticulture Professionals, Master Gardener Education and Impact, and Consumer Education in Environmental Horticulture.

b. Impacts : Environmental Horticulture Education for Horticulture Professionals

There was a total of 562 days reported in this area. The total number of program contacts reported in this project was 5,511. The breakdown of these contacts is as follows: 3,832 white males, 1,229 white females, 369 black males, 39 black females, 33 classified as other males, and 9 classified as other females. From this group, a total of 0 were classified as limited resource. Accomplishments that were reported to the Clemson University Information Management System show 102 total educational programs and activities conducted in this project area. There were a total of 1,544 participants who completed these educational programs. Of those individuals completing these programs, 1,361 reported increased knowledge as a result of their participation. Of those participants who reported increased knowledge, 277 indicated that they planned to adopt the recommended practices while 4 reported that they actually adopted or increased the use of recommended practices as a result of the programs. There were 48 newsletters or trade journal articles prepared. There were also 1,416 non-program contacts through telephone calls and office visits. There were 33 joint educational efforts with industry, state or federal agencies and/or trade associations and 27 joint educational efforts with other agencies conducting certification or vocational training.

Impacts: Master Gardener Education and Impact

There was a total of 798 days reported in this area. The total number of program contacts reported in this project was 12,006. The breakdown of these contacts is as follows: 4,030 white males, 7,323 white females, 238 black males, 298 black females, 60 classified as other males, and 57 classified as other females. From this group, a total of 7 were classified as limited resource. Accomplishments that were reported to the Clemson University Information Management System show 374 total educational programs and activities conducted in this project area. There were a total of 6,031 participants who completed these educational programs. Of those individuals completing these programs, 4,896 reported increased knowledge as a result of their participation. Of those participants who reported increased knowledge, 1,877 indicated that they planned to adopt the recommended practices while 179 reported that they actually adopted or increased the use of recommended practices as a result of the programs.

The number of Master Gardeners that received training was 2,881. The number of people trained to become Master Gardeners was 1,019. The number of hours contributed by

agents on continuing education training for Master Gardeners was 640. There were 2,632 Master Gardeners conducting 1,299 programs and activities such as oral presentations, newsletters, radio programs, and TV appearances. These trained Master Gardeners contacted 30,398 individuals and contributed 38,575 hours of service. Master Gardener volunteers contributed 155,555 miles of travel. This year, 1,299 residents completed the requirements to become a SC Master Gardener.

#### Impacts: Consumer Education in Environmental Horticulture

There was a total of 3629 days reported in this area. The total number of program contacts reported in this project was 50,087. The breakdown of these contacts is as follows: 19,223 white males, 24,813 white females, 2,511 black males, 2,820 black females, 380 classified as other males, and 340 classified as other females. From this group, a total of 196 were classified as limited resource. Accomplishments that were reported to the Clemson University Information Management System show 876 total educational programs and activities conducted in this project area. There were a total of 7,127 participants who completed these educational programs. Of those individuals completing these programs, 6,289 reported increased knowledge as a result of their participation. Of those participants who reported increased knowledge, 1,515 indicated that they planned to adopt the recommended practices while 220 reported that they actually adopted or increased the use of recommended practices as a result of the programs. There were 655 mass media activities reported.

In addition, there were 35,562 non-program contacts through telephone calls and office visits. Consumer received additional information through 5,391 visits to demonstration sites, 31,215 telephone calls to the Home & Garden Information Center and the Urban Horticulture Center, and 5,047,528 visits to university horticulture websites.

There was a total of 4,988 days reported for this Theme Area. The total number of program contacts reported in this initiative was 67,604. The breakdown of these contacts is as follows: 27,085 white males, 33,365 white females, 3,118 black males, 3,157 black females, 473 classified as other males, and 406 classified as other females. From this group, a total of 203 were classified as limited resource. Accomplishments that were reported to the Clemson University Information Management System show 1,352 total educational programs and activities conducted in this initiative. There were a total of 14,702 participants who completed these educational programs. Of those individuals completing these programs, 12,546 reported increased knowledge as a result of their participation. Of those participants who reported increased knowledge, 3,679 indicated that they planned to adopt the recommended practices. In addition, there were a total of 36,978 non-program consumer contacts through telephone calls and office visits and 5047,528 consumers visiting university horticulture websites.

c. Source of Federal Funds: Smith Lever 3b&c

d. Scope of Impact: State

## **Key Theme: Creating Sustainable Environment -Animal Waste Management**

### a) Description

The purpose and goal of this initiative is to reduce the impact of Animal Agriculture on the Environment. A total of 368 days were worked by Extension staff on Animal Waste issues and educational program delivery. Programs were planned and presented to train livestock producers of confined animals in proper manure management and applications. Participants in the programs were certified under the CAMM program by test that measure understanding and working knowledge of proper manure handling and disposal techniques.

### b) Impact: There were a total of 17 educational programs and activities conducted across the state with 785 people attending these events. Of the 785 people attending 706 reported that they had increased their knowledge in the area of animal waste by attending these meetings and events. A reported number of 50 participants stated they plan to adopt practices learned from these educational programs. There were a total of 2109 contacts made by agents and specialist advancing educational efforts in animal waste management and this was reported as 367 work days used as well. Phone calls and direct contacts/visits reports that 74 people received information through these non program opportunities. A large percentage of this work was done through regional and state wide program disbursement as well as through county meetings. There were 8 articles/publications reported to have been written on this subject. There were 2 CAMM trainings held in the Pee Dee of South Carolina that shows 80 people attending for swine and poultry waste management education. In addition recertification classes for CAMM license holders were held throughout the year for all operators of confined livestock enterprises.

Educational programs were conducted both in state and at national meetings that addressed using animal manure as a replacement for fertilizer in the growing of cotton. This project was supported by SARE and the data and findings were reported at the National Beltwide Cotton conference by the agent and specialist involved. Additional research was conducted and replicated using anaerobic digestion with papers being submitted at the Animal Waste management Regional Conference. Agents and specialist worked closely in the development of educational programs for the poultry, pork and dairy industry associations and groups in the area of waste management and composting. Newsletters, journal articles and popular press articles were submitted for grower use by Agents and Specialist in the area of Animal Waste Management.

In research, animal waste will be treated with the strong oxidizing agent ozone. Before and after samples will be collected and analyzed for differences in microbiological and chemical parameters of pollution.

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 1 year of beginning operation. A new version of the state regulation, passed in 2002, requires that all existing producers to attend the training as well. In addition, 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.

The animal manure initiative team at Clemson University has developed a swine, poultry and dairy version of this program. The program includes a 350 page training manual, 7.5 hours of instruction, and a certification exam. All three training manuals can be obtained on line at [www.clemson.edu/camm](http://www.clemson.edu/camm)

During this initial six-year period of the program approximately 1,260 individuals have attended the CAMM program.

Attendees must pass an exam to become certified. The test results are:

- Number attending 1260
- Number attempting test 1231
- Number passing 1099
- Passing percentage 89.3%

The CAMM program is offered state-wide and the distribution of trained farmers is shown in Figure 1.

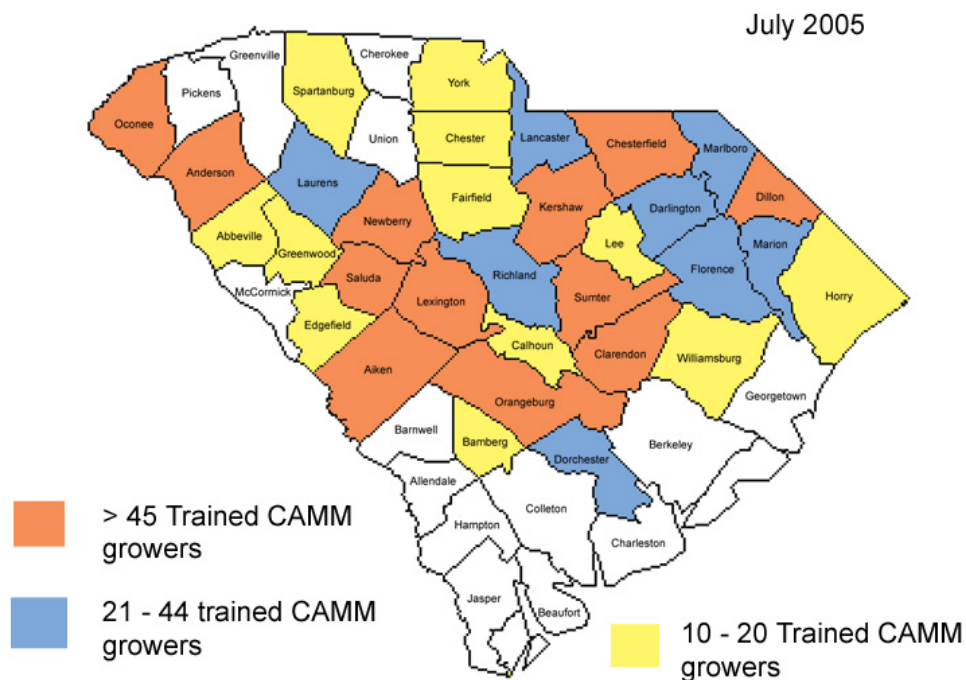


Figure 1. Distribution of livestock and poultry producers trained in the CAMM program by county.

All animal waste permit holders are required to obtain 10 hours of recertification credit every 5 years. Clemson Extension provides seminars, field days, and conference presentations to provide the required continuing education.

A description of the major activities is given below.

2003-2004. Demonstration Project: Composting Turkey Brooder Litter in South Carolina: A composting trial was conducted on a turkey brooder farm in South Carolina. It was determined that turkey brooder could be composted without amendment and a high-quality, stable product was obtained.

This information has been used in continuing education seminars.

2003- 2006. Demonstration Project: Fertilization of Longleaf Pine: A Comparison of the benefits of using poultry litter versus commercial fertilizer.

2003 - 2006. Treatment of broiler litter by screening, and anaerobic digestion

In 2004-2005, the CAMM team provided certification training for 43 animal producers. Each attendee was required to take an exam to receive certification. The minimum passing grade was 70%. The pass rate for the exam was 86% during this year.

Three hours of recertification training was provided for swine producers at the South Carolina Pork Conference. A total of 64 producers attended and obtained required continuing education credits. These credits are required to maintain certification in animal manure management.

2004 - 2006. Characterization and use of animal manure compost.

2004 - 2006. Ammonia-N losses following land application of animal manure

2005 - 2007. Development of manure management education materials for horse facilities.

Many livestock and poultry producers and professionals obtained one-on-one assistance related to regulatory compliance, animal manure management practices, or manure management system design.

Approximately 680 individuals attended Animal Waste Management Initiative programs or received one-on-one assistance in animal waste management.

### Patent Applications

Municipal Solid Waste System



## Publications

Research: 12

Extension: 8

- c. Source of Federal Funds: Smith Lever 3b&c and Hatch
- d. Scope of Impact: State and Region

## **Key Theme: Creating Sustainable Environment -Pesticide Safety Education**

### a. Description

Pesticide applicators are trained by the Cooperative Extension Service to become Private Pesticide Applicators (Initial Certification Training). Pesticide applicators are trained to interpret and use the pesticide label and other information, especially when handling Restricted Use Pesticides, to protect themselves, agricultural workers and others, the public, water quality, and wildlife, and endangered species.

Certified Private Pesticide Applicators are required to be recertified every five (5) years. There is not a way to verify numbers because not all Recertification credits are obtained at one time in one training, however, virtually all Private Pesticide Applicators receive all of their five (5) required Recertification credits through the County Extension offices. Commercial applicators also receive some of their Recertification credits through the County Extension offices, and many receive credits through other Extension sponsored or partnered programs. (Numerous commercial applicator programs are not federally funded and not included here.)

Private Applicators get Recertification training in one or more of 16 topics, including worker safety, integrated pest management, transport and disposal of pesticides and rinsates, calibration and maintenance of application equipment, water quality and drift prevention.

### b. Impact

Initial Certification Training of pesticide applicators was given by County Pesticide Training Coordinators at a minimum of 47 trainings. A minimum of 359 pesticide applicators was trained. Based on an average of individual training averages, trainees, pre-test / posttest scores showed that they increased their knowledge of how to handle pesticides safely by 20% as a result of the training (21% in FY 2001, 2002). In FY 2003 in South Carolina, 57% of the trainees answering the use question said they apply Restricted Use Pesticides in traditional agricultural crops, 13% in forestry, 17% in nurseries and on ornamentals, and 27% in greenhouses and 20% other (totals more than 100% because individual apply pesticides in more than one area). The proportion of trainees would planned to apply Restricted Use Pesticides showed a numerical increase in traditional agriculture and decline in forestry, and a decrease in ornamentals/nurseries and

greenhouses from FY2002

In FY 2004, County Extension offices conducted a minimum of 89 programs for Recertification. 1,832 people completed these programs. Of those completing programs, 1,505 reported an increase in knowledge. 1,014 reported that they either adopted or planned to adopt a practice learned. \*

\*Based on applicator attendance in early Recertification time blocks, the number of scheduled Extension recertification trainings vary in number across the five year Recertification block, increasing in frequency towards the end of the block. Numbers of Private Applicators becoming recertified varies among years because Recertification is based on a five-year cycle. Few Private Applicators are recertified in the initial years of the cycle, most are Recertified in the last two years and especially the last year. Also, not all Extension partnered trainings are recorded on the Pesticide Information Program web site (<http://entweb.clemson.edu/pesticid>) because of sponsorship. Additionally, many Private Applicators obtain some or all of their Recertification credits through self-study using material supplied by the County Extension offices.

In 2004-05, 89 programs were conducted, reaching 1,273 people. Almost 1,000 persons reported that they increased knowledge. Over 597 reported that they plan to adopt a new practice.

In 2005-06, 88 programs were conducted, reaching 1,409 people. In addition, 1,195 people reported an increase in knowledge. Over 573 reported that they plan to adopt a new practice.

- c. Source of Federal Funds - EPA pass-through funds to the USDA Pesticide Safety Education Program
- d. Scope of Impact – State specific

### **Key Theme: Creating Sustainable Environment Household and Structural Pest Control**

- a. Description  
Cooperative Extension Service provides other educational opportunities for applicators (and Recertification credits usually may be obtained at these as well). Numbers of pesticide safety education programs conducted without Federal funding far exceed those funded via federal program funds; numerous commercial applicator programs are not federal
- b. Impact  
In 2004, 46 pesticide safety education and training programs were conducted, reaching 2,466 persons (presumed to be mostly Private Applicators and P.A. trainees. There were 559 who reported that they adopted practices or planned to adopt new practices. A minimum of 868 persons received information through “non-program” contacts (very much under-reported category).

In 2005, 27 pesticide safety education and training programs were conducted, reaching 1,528 persons (presumed to be mostly Private Applicators and P.A. trainees). There were 605 who reported that they increased knowledge and 457 who planned to adopt practices learned. A minimum of 1147 persons received information through “non-program” contacts (very much under-reported category).

In 2005-06, 10 pesticide safety education and training programs were conducted reaching over 258 people (presumed to be mostly Private Applicators and P.A. trainees). 190 reported an increase in knowledge and 160 reported that they planned to adopt a practice.

- c. Source of Federal Funds – EPA pass-through to the USDA Pesticide Safety Education Program
- d. Scope of Impact – State Specific

### **Key Theme: Creating Sustainable Environment Sustainable Forest Management and Environmental Enhancement (Forest Crops)**

#### a. Description

South Carolina has vast acreage of forests from the mountains to the coast. More than  $\frac{3}{4}$  of the holdings are by non-industrial, private land owners. Proper stewardship is essential to maintaining forest health and productivity. Transferring technical information about silvicultural systems, water quality, forest health issues, and management alternatives provides the land owners with usable science-based information. The end result is healthy forest for the production of wildlife habitat, clean water, recreational activities and traditional wood products such as lumber and pulp. Forestry is major industry in South Carolina and healthy productive forests are essential to the rural and state economies.

#### b. Impacts

The Alternative Silvicultural Systems project utilizes and expands existing demonstrations of hardwood (bottomland and upland) management to provide private landowners, professional foresters and resource managers with an understanding of even age and uneven age management systems. In 2005-06, 39 programs and activities were conducted this past year for 696 persons. 581 reported increased knowledge, while over 211 planned to adopt a practice learned. 386 people received information through non-program contacts such as phone, office, and farm visits.

An example of projects in this area in 2005-06, included a program on yellow-bellied sapsucker damage to hickory trees and characteristics of old-growth sourwood trees, a herpetology program involving gopher tortoises, a landowner program on best methods for maintaining property for wildlife and timber management and organization of a State

Forestry Extension Team that issues landowner newsletters based on Lower state and Upstate residency.

In 2005 approximately 28 % of total team effort was devoted to this program. Of 1900 landowner contacts approximately 11% were limited resource landowners. County activities included 43 formal programs with more than 945 participants. Most of the efforts at the county level consisted of forest landowner association meetings and weekly radio programs. At the state level, a program on Invasive Plant Species was provided via satellite delivery to 10 downlink sites and approximately 75 landowners. The topic was delivered to another 60 individuals at the South Carolina Agricultural Exposition held in Columbia on March 1, 2005. Another program that was established included the Spartanburg Coalition to Control Kudzu. This program utilizes volunteers to mechanically control kudzu within the City of Spartanburg.

The Coalition to Control Kudzu has reported work on more than 35 sites with eradication completed on 5 sites and control or partial control on the remainder. Calculated the number of intensively managed (chemical and fertilizer use) pine plantation acreage. Data will be used in long term timber supply projections for economic development. Locational analysis was performed to determine best locations for mill development sites for industries using small diameter timber. This has been and will continue to be a heavily used economic development tool.

Research has quantified the carbon removed from the atmosphere by pine plantations growing on depleted Piedmont soils in SC. Plantations stored more than 90 tons/ha of atmospheric carbon in their biomass during their 50 years of growing and the soil accumulated 25 tons/ha of C. The research team was the first to demonstrate that decomposing root systems of harvested trees, carbon-rich sties in depleted Piedmont soils, help sustain productivity.

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact – State

**Key Theme: Creating Sustainable Environment - Longleaf Pine and Low-country Conservation Program.**

a. Longleaf pine is the most valuable, insect, disease and wind resistant of all the southern pines and once dominated 7.6 to 9.5 million acres of South Carolina landscapes. Today, less than 424,000 acres remain. Healthy longleaf forests are some of the most ecologically diverse in North America, hosting some 900 different plant species, 74 amphibians, 96 reptiles, 86 species of birds and 36 species of mammals south-wide. Of these, 26 plant species and 7wildlife species native to longleaf forests are considered to be federally threatened or endangered. Many of these species can coexist in healthy, fire-maintained longleaf forests with sustainable timber harvest. The intent of this project is to provide natural resource professionals with programming on longleaf pine ecology, management technology, and hardwood management and to develop and expand demonstrations of longleaf pine restoration, even and uneven-age management, pine

straw production, and alternative management systems throughout the state. 263 people participated in 8 programs and activities this past year.

Over 181 persons participating in Longleaf pine activities reported an increase in knowledge.

“Low-Country Forest Conservation Partnership” is a grant-funded, three-year project in partnership with The Nature Conservancy and other groups. The project area covers three million acres in all or parts of: Allendale, Beaufort, Berkeley, Charleston, Colleton, Dorchester, Florence, Georgetown, Hampton, Horry, Marion and Williamsburg Counties. The project’s objectives are to develop, demonstrate, implement and publicize to landowners and others a range of new and existing forest management methods aimed at conservation and restoration of native ecosystems of the southeastern coastal plain; educate and assist landowners with the adoption and implementation of conservation forestry practices on their land; increase landowner, public and political recognition of the need to use prescribed fire for safe and effective conservation management of stands within fire-dependant forest types and ,through research-based outreach, empower landowners to become advocates for conservation forest management on appropriate private and public forestland.

b. In 2005-06, 339 people participated in 14 programs and activities during this past year. All participants reported an increase in knowledge.

Highlights include a Conservation Forestry Field Day at Hasty Point Plantation in Georgetown County where 19 landowners who own 13,000 acres of land developed conservation forestry plans and began practicing conservation forestry on their lands. This breaks down to: one landowner in Barnwell - 325 acres, one in Colleton - 400 acres, six in Georgetown - 5,000 acres, five in Horry - 5,000 acres, three in Marion - 775 acres and three in Williamsburg - 1,500 acres.

A summer meeting of the Salkehatchie Forestry Association was held in Bamberg. Gave As a result of follow-up visits and phone calls, five landowners have developed conservation forestry plans and are practicing conservation forestry on 7,574 acres. This breaks down to: one landowner in Barnwell -- 2,965 acres, two landowners in Bamberg -- 709 acres one landowner in Greenwood & Laurens - 400 acres and one landowner in Hampton - 3,500 acres.

Sixty-seven professional foresters attended a Managing Cherrybark Oak workshop on March 30 at Cheraw State Park and across the Pee Dee River in Malboro County at Cattails Tree Farm. All who attended indicated the knowledge gained would help them better manage the river bottom hardwoods they take care of. Eighty-six percent of the respondents to a post course survey rated the program "Good" or "Excellent." They indicated the knowledge gained would help them save \$80,000 and earn \$235,000 in the future with their hardwood management activities. The survey respondents (25 out of 67) manage 106,500 acres of land in the region.

Forty-six professional foresters attended a longleaf pine planting workshop and invasive plant species program in April 2006 at the Edisto Research & Education Center in Barnwell County. The programs covered how to restore longleaf pine by planting and controlling non-native invasive plant species. The program was well received. More than 88% of the participants rated the program content as "Good" or "Excellent." Thirty-eight intend on implementing the knowledge gained in their every day management. The eight who don't are wood procurement foresters who are not involved in land management. Foresters who plan to implement practices said the knowledge gained would help them save \$59,000 and earn \$185,000 in the future on the 445,000 acres of land they manage.

Impacts under the Low-Country Conservation Initiative are listed below:

The South Carolina Prescribed Fire Council was established to promote and protect the use of prescribed fire in the state.

Five demonstration areas covering a total of 9,000 acres were established to show conservation forestry concepts which include: Restoring and restructuring degraded bottomland hardwood forests into productive forests; Using uneven-aged forest management in a bottomland hardwood stand; Using fire and other methods to preserve and develop herbaceous vegetation communities in longleaf pine stands; Use of fire as a tool in the ecotone between pine uplands and bottomland forests; Change even-age loblolly and longleaf stands to uneven-age stands; Transition loblolly stands to longleaf stands.

156 Natural Resource Professionals who manage more than 1,542,858 acres were trained in Conservation Forestry Practices in four programs.

185 landowners who own more than 114,100 acres attended nine workshops on Conservation Forestry.

28 landowners developed conservation forestry plans on 26,959 acres. 50,000 acres of land were protected from development through purchase and conservation easements which allow the land to continue to be managed for ecologically-sustainable forestry and wildlife management.

- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact – State

**Key Theme: Creating Sustainable Environment - Master Tree Farmer/Master Woodland Owner**

a. Description

This project's objectives are to improve forest productivity by 25% by expanding the level of management master landowners practice on their forest land and to use trained master landowners to promote forest management among their peers. 131 people

participated in 32 programs this past year.

b. Impacts

In 2005-06 activities include the Master Tree Farmer Level 2 satellite program in Walterboro. All who attended reported increased knowledge of subject matter and planned on implementing at least two new practices on the 6,520 acres of forest land they owned in the region. They further indicated the knowledge gained by taking the class would help them save \$82,000 and earn \$116,000 in the future in managing their land.

In 2005 Master Tree Farmer was delivered to the southeastern states via satellite to more than 3,500 landowners.

- Those attending the course collectively own or manage over 4 million acres.
- Over 94% of the participants who took the courses indicated that they would save or earn more revenue as a result of taking the courses.
- Since the majority (over 72%) of forest and wildlife habitats in South Carolina are privately owned, the course has had a major impact on the stewardship and conservation of these lands for wildlife, forestry, and other natural resources.
- Extremely cost-effective method of delivering pertinent and timely information to landowners, managers, and natural resource professionals.
- Because of the efficiency and tremendous impact of the program, it has been recognized regionally and nationally and has been awarded:
  - 2003 Southern Region Extension Award
  - 2004 American Distance Education Award
  - 2004 USDA Secretary's Honor Award, highest award presented by USDA

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact - Multi-state

### **Provide Landowners with Alternative Silvicultural Systems**

a. Description

This project utilizes and expands existing demonstrations of hardwood (bottomland and upland) management to provide private landowners, professional foresters and resource managers with an understanding of even age and uneven age management systems. 39 programs and activities were conducted this past year for 696 persons.

Highlights include a program on yellow-bellied sapsucker damage to hickory trees and characteristics of old-growth sourwood trees, a herpetology program involving gopher tortoises, a landowner program on best methods for maintaining property for wildlife and timber management and organization of a State Forestry Extension Team that issues landowner newsletters based on Lower state and Upstate residency.

b. Impact --

In 2004 a total of 1,142 landowner contacts were reported for this project. Approximately 12 % were limited resource landowners. The number completing educational programs was 346. A formal program on forestry herbicides was conducted for professional natural resource managers. The content covered technological updates of research on forestry herbicides and training on identifying and controlling invasive species. The initial program review indicated that the program was attended by 50 professionals and program materials would potentially have a positive impact on 888,250 acres of forests and natural areas.

In 2005, sixty-two percent of the landowners completing formal programs reported increased knowledge. Of this number, approximately 30% planned to adopt new practices when managing their land. Follow-up surveys to determine actual economic impacts were not reported.

A major grant was received from the Doris Duke Foundation to further forest management practices and conservation in the coastal plain

Research has quantified the carbon removed from the atmosphere by pine plantations growing on depleted Piedmont soils in SC. Plantations stored more than 90 tons/ha of atmospheric carbon in their biomass during their 50 years of growing and the soil accumulated 25 tons/ha of C. The research team was the first to demonstrate that decomposing root systems of harvested trees, carbon-rich sties in depleted Piedmont soils, help sustain productivity.

c. Source of Federal Funds - Smith Lever 3b&c and Hatch

d. Scope of Impact - State

### **Broadening the Practice of Sustainable Forestry on all Forest Lands**

a. Description

This project's objectives include developing and conducting training programs to teach sustainable forestry principles, informing landowners of the economic and environmental benefits of using BMPs in all forest management operations and utilizing the Timber Operations Professional (TOP) Logger and other logger education programs to train loggers on sustainable forestry and alternative silvicultural systems. The project also works with established groups within the forestry community to support and promote appropriate training and outreach programs related to sustainable forest management, promotes the use of prescribed fire, educates public officials and urban communities about the benefits of urban forests, and develops methods of control and educate professionals and family forest landowners on these to eliminate or control invasive pests of forests and enhance forest health. 1904 people participated in 94 workshops and activities this past year.

b. Impact



Highlights include installing a permanent display concerning forest burning at Huntington Beach State Park, adjacent to the parking lot for the headquarters building, participation in a Longleaf Pine Heritage day tour on Hobcaw Barony in Georgetown, and a "Non-native, Invasive Plants of Southern Forests" program where landowners and foresters increased their knowledge of the impact of these plants on the ecosystem, improved their ability to recognize the plants, and learned control strategies.

c.. Source of Federal Funds - Smith Lever 3b&c and Hatch

d. Scope of Impact - State

### **Key Theme: Creating Sustainable Environment Forest Resource Management**

a. Description

This project's objectives include developing and conducting training programs to teach sustainable forestry principles, informing landowners of the economic and environmental benefits of using BMPs in all forest management operations and utilizing the Timber Operations Professional (TOP) Logger and other logger education programs to train loggers on sustainable forestry and alternative silvicultural systems. The project also works with established groups within the forestry community to support and promote appropriate training and outreach programs related to sustainable forest management, promotes the use of prescribed fire, educates public officials and urban communities about the benefits of urban forests, and develops methods of control and educate professionals and family forest landowners on these to eliminate or control invasive pests of forests and enhance forest health. 1904 people participated in 94 workshops and activities this past year.

b. Impact

Of the over 1900 persons participating in 2005-06, 1672 reported an increase in knowledge. Over 915 people received information through non-program contacts such as phone, office, and farm visits. Program highlights include installing a permanent display concerning forest burning at Huntington Beach State Park, adjacent to the parking lot for the headquarters building, participation in a Longleaf Pine Heritage day tour on Hobcaw Barony in Georgetown, and a "Non-native, Invasive Plants of Southern Forests" program where landowners and foresters increased their knowledge of the impact of these plants on the ecosystem, improved their ability to recognize the plants, and learned control strategies.

In 2005 this program comprised 41 % of the total team effort. More than 2,350 people completed formal educational programs. Nineteen TOP classes were conducted and were attended by 583 loggers and foresters. This program generated considerable activity at the county level in 2000-01. Counties reported 43 activities with 1267 landowners completing educational programs and 1038 or approximately 80 % reporting increased knowledge as a result of the programs. Eight-five landowners reported the application of BMP's to their forest property.

Major efforts within this project were directed at logger training and education under the Timber Operations Professional (TOP) program. The program is jointly administered by Clemson Extension Forestry and the South Carolina Forestry Association. During this reporting period 635 loggers and foresters attended 17 programs conducted across the state. The program has had a significant beneficial effect on forest practices. Eighty-nine percent of the wood delivered to mills in South Carolina is delivered by loggers that have completed the TOP training. The percentage of acceptable overall Best Management Practices conducted on forest lands within the state, and reported by the South Carolina Forestry Commission has increased from 86.4 % in 1996 to 91.5 % in 1999. The TOP training program is supported with 15 volunteers.

In 2005 sixty percent of these individuals attending formal programs reported increased knowledge as a result of the programs and 60% of them plan to adopt practices into their forest management plans. Of those planning to adopt practices, 17 % have already done so.

- c. Source of Federal Funds - Smith Lever 3b&c, SMZ project – EPA & DEHEC
- d. Scope of Impact – State

## **GOAL 5: ENHANCED ECONOMIC OPPORTUNITY AND QUALITY OF LIFE FOR AMERICANS**

**Key Theme:** Community, Leadership and Economic Development

### Program Components

Leadership and Community Development  
Economic Development/Promoting Business Programs  
Public Issues Education

### **Key Theme - Community Leadership and Economic Development - Leadership And Community Development**

#### a. Description

This project addresses the need for increased leadership training and development in South Carolina's rural, suburban, inner-city, and transitional areas. Transitional areas include counties and communities at the fringes of metropolitan sprawl or changing neighborhoods. The state has undergone significant job losses from plant closings and relocation of textile manufacturing to plants outside the US. The Palmetto Leadership program is 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. These target areas often lack progressive leadership that looks beyond local political boundaries. Palmetto Leadership fosters 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. Palmetto Leadership helps create the next generation of informed leaders.

Citizen led committees increase leadership skills and effective use of planning tools to address community issues, concerns, and policies. Components include a community asset inventory process, priority setting, socio-economic trend analysis, change management, planning, statistical analysis of local and regional socio-economic profile data, leadership and human capacity development, conflict negotiation and consensus building.

Topical issues addressed include economic development, education improvement, local government, public safety, health care, land use planning, growth management, recreation, tourism, and local cultural appreciation. The flexible curriculum is designed to fit the audience. The leadership curriculum template is similar from county to county, but local advisory groups have significant influence in shaping the actual program as presented. Web resources are identified to assist local leaders and program participants with task force planning and community issues. News releases publicize task force activities in local newspapers and electronic media. Local elected leaders and their councils utilize information and foster citizen participation and civic responsibility. In addition to community leadership program, nonprofit organization board and staff training was offered in the state. Eleven CD agents have received nonprofit board training and have the capability to present programs to local nonprofit and voluntary organizations on board effectiveness, board governance, risk management, by-laws, board structure and function, public relations, motivation of volunteers, financial management, legal responsibilities, and other related board management and process issues. Clemson Extension partnered with the South Carolina Association of Nonprofit Organizations to provide this training to the state and continues to make the training notebooks and materials available to the 13 state southern region of the U.S.

b. Impacts

This year 7,684 persons participated in 335 Community Leadership programs The number of participants reporting increased knowledge was 6,576. The number of individuals planning to adopt or increase the use of suggested practices was 4,872.

During 2006, the Clemson Institute for Economic and Community Development conducted a series of “Charrettes” (input sessions) at four locations around the state. More than 500 individuals participated in the meetings which were held in Columbia, Florence, Orangeburg and Greer. The attendees were a diverse group, representing agencies, parents, local and state lawmakers, law enforcement and officials from the judicial system. In addition, following the initial four sessions, 6 input meetings were held with groups of juveniles from throughout the state. These sessions were designed to get input from community stakeholders and the juveniles concerning local efforts to address youth issues. The CIECD provided facilitators for all of the input sessions, recorded the responses and developed a summary report for the Department of Juvenile

Justice. Additionally, we are working with the Department to utilize the information in the report to develop specific goals and strategies as part of a comprehensive plan to address some of the issues that were brought out of these citizen/stakeholder input sessions.

Working with organizations that are apart of our Community Collaborative, we hosted a health fair for the Pee Dee Indian Tribe in Northeastern corner of the state. The Tribe is a community long suffering from low employment, debilitated housing and many of other ills that are prevalent in our poorer communities within the State. As a result of the health fair, we were able to connect a number of the members to much needed healthcare services.

Additionally, we were able to coordinate the State Housing and Finance Authority visiting the site, which yielded significant opportunities for the Pee Dee Tribe. The State Housing Authority, through the efforts of the Collaborative has qualified twenty-five (25) tribal members for housing assistance. This is particularly noteworthy for a community that today has structures with no indoor plumbing, and where the flooring in some of the buildings has collapsed to the ground. We along with members of the collaborative continue to work with the Pee Dee Indians to improve the conditions in their community.

In Leadership Development individuals assumed leadership positions in committees, elective offices, and task groups to accomplish community-based goals. They assumed leadership positions and accomplished community-based results as a direct result of involvement in the leadership program. They were involved in one of the 2.1 task groups per leadership program. Individual capacity development may be more singular or result in voluntary involvement in pre-existing community activities. In Palmetto Leadership task groups address youth leadership, economic development, business appreciation, educational system support, county promotion materials, tourism plans, human services, and leadership programs. The key outcomes include the formation of strategic and tactical plans to address local concerns noted above.

The number of people who received information through “non-program” contacts such as telephone, office, and site visits in Leadership Development was 5,417. The number of individuals completing leadership programs who collaborated with others in the region to address an issue or concern was 635. The Palmetto Leadership program values partnerships and collaboration. The program beneficiary appreciates the modeling of teamwork and support to address their needs.

The number of nonprofit organization board members trained was 297.

An additional 2,003 youth were engaged in Intergenerational-Service Learning or community development projects.

A sample of Palmetto Leadership Program and Task Force Outcomes:

- The Palmetto Leadership Marion County program has offered the leadership program to local leaders consistently in the past 11 years. The program had produced a widely-distributed newsletter, and sponsored a Palmetto Youth Leadership for academic credit. Col. List, a graduate of Palmetto Leadership directs the effort and graduated several classes of young leaders. This collaborative program includes two key groups: Clemson Extension and Mullins High School in Marion County District Two. Other partners include The Sixth Marine Corps District ROTC, Mullins Chamber of Commerce, Marion County Council, Marion County Medical Center, and the City of Mullins. The class had 7 young leaders participate.
- Leadership Lee County – Leadership Skills Retreat
- Leadership Berkeley – Developing Your Leadership Potential
- Conducted DIRECTIONS training for SC World Trade Center Foundation Board
- Leadership Colleton – Leadership Skills Retreat
- A Palmetto Leadership graduate was sworn in as a Dorchester County Magistrate Court Judge
- Small Business seminar series in Union County
- Operation Military Kids church dedication service. OMK members planned activities to support Guard Unit in Manning, SC
- Agent serves as a national Peer Mentor with the National Youth Leadership Council. Mentor provided training to volunteer mentors for children whose parents are in prison.  
Four youth and adults developed a video outlining the problem of drugs in Sumter County for use in a forum.  
Taught Leadership and Character Education for the Real World course in conjunction with the Mid-Carolina Middle School.  
Leadership Laurens Government Day at the Statehouse  
YLDP program in Ridgeland
- Bluffton Leadership graduated 9; Jasper Leadership graduated 15.
- Beaufort Leadership graduated 25.
- Youth and adults in Sumter worked to remodel a building to open a new arts center near Harmony Court Public Housing.
- Richland County 101 Course was offered.
- The Citadel Senior Scholars Program
- A leadership retreat for the Board of the SC Assoc of Volunteer Administrators was conducted.
- Colleton County Youth and Adult Leadership Boards were trained.
- The Action Fatherhood Board Training was held in Florence.
- CLED promotional presentations were presented to county leaders in Georgetown and Horry Counties.
- Conducted National Issues Forum for State Association of College and University Presidents.
- Facilitated public issues forum on Home Land Security Intergenerational Dialogue.
- Conducted the Tri-County Leadership Program and formed a task group on

literacy.

- Conducted nonprofit organization board trainings and strategic planning sessions held in Darlington, Florence, Chesterfield, and Kershaw, Barnwell Counties.
- Conducted leadership classes with the Williamsburg County Enterprise Zone in Williamsburg County.
- Conducted youth leadership programs through the Williamsburg County Library in Williamsburg County as a summer program.
- Provided leadership to the 4-H Leadership program in Clarendon County.
- Coordinated the Junior Palmetto Leadership program for 30 eighth graders in Newberry County. The program participants visited nursing homes and participated in inter-generational programs.
- Coordinated the Junior Palmetto Leadership program for 45 11<sup>th</sup> graders. These participants planted flowers for the Department of Parks, Recreation, and Tourism.
- Coordinated the Junior Palmetto Leadership program for 24 10<sup>th</sup> graders who participated in litter pick-up programs as part of an on-going adult Palmetto Leadership program.
- Palmetto Leadership graduate serves as director of Edgefield County Habitat for Humanity program. Plans call for three new homes to be built.
- A Palmetto Leadership graduate was elected as Edgefield County Treasurer.
- A Palmetto Leadership graduate was elected to the Edgefield County School Board.
- Leadership Newberry County introduced movies on Saturday mornings at the downtown Newberry Opera House for children. The movies are cartoons, westerns, and general audience movies.
- Edisto Valley Palmetto Leadership graduates have applied for 501c3 status to continue operating the Edisto Development Council. The purpose of the Council is to promote the region's villages and towns in Aiken County.
- Midland Valley Palmetto Leadership graduates formed a Task Group to offer a Building Family Strengths Program in the Valley in Aiken County.
- A Palmetto Leadership Task Force in Edgefield County formed a Palmetto Leadership Youth Program. A project undertaken by the youth program graduates is the creation of a Landscape for Learning Project.
- Conducted Junior Palmetto Leadership in York, Chester, and Lancaster Counties.
- Conducted Mini-Society Youth Program for Cherokee County.
- Conducted Professional Development Training for Secretaries Association in York County.
- Conducted DIRECTIONS training for nonprofit organizations in Chester County.
- Conducted Leadership Marlboro
- Conducted Board Training for Sumter Citizen's Coalition
- Junior Palmetto Leadership conducted in Dorchester and Charleston
- Practical Parliamentary Procedure for Carolina Children's Charity
- Leadership Series conducted for City of Bennettsville supervisors and department heads
- York County Children and Weight Coalition Training

- Adult Leadership Retreat conducted in Clarendon County
  - Facilitated Livable Sumter Committee and Allendale County Strategic Planning Sessions
  - Conducted Leadership Lee Sessions
  - Junior Leadership Program conducted in Colleton County
  - The Shrimp Industry Task Force meetings and CEO Council forums conducted
- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact – State

**Key Theme - Community Leadership and Economic Development - Promoting Business Programs**

a. Description

This project addresses the need for increased expertise regarding economic development methods and strategies in South Carolina’s communities using business retention and expansion (BR&E) models. BR&E accounts for 40-80% of job growth in a community. Locally owned small businesses are growth opportunities for South Carolina. Extension professionals must increase their knowledge and understanding of economic development principles and become an important part of local and regional economic development. As the BR&E credentials of extension staff improve the focus can shift from agent training to BR&E program implementation. Twelve CD agents, extension associates, and specialists are certified in economic development and BR&E programming.

In the past six years, 20 extension agents with community development responsibility graduated from the SC Economic Developers’ School and were certified as Economic Developers. Seventeen agents became BR&E Certified Consultants and are qualified to coordinate local BR&E Programs. In the past years several of these highly qualified personnel have retired. The remaining Extension staff members are expected to become an active and engaged resource to local and regional economic development officials. With the reduction of staffing, the number of BR&E programs has been reduced considerably. This has caused a shift to the use of BR&E Focus Groups for data collection and short surveys. The special emphasis during the past year has been placed on antique retailers and dealers in communities within the Heritage Corridor. This survey work is on-going.

b. Impacts

FastTrac® is a comprehensive entrepreneurship-educational program that provides entrepreneurs with business insights, leadership skills and professional networking connections so they are prepared to create a new business or expand an existing enterprise. The FastTrac® program includes practical, hands-on business development programs and workshops for existing entrepreneurs, aspiring entrepreneurs, as well as entrepreneurship curriculum for college students.

FastTrac® is designed to help entrepreneurs hone the skills needed to create, manage and/or grow successful businesses. Participants don't just learn about business, they live it! They work on their own business ideas or ventures throughout the program - moving their venture to reality or new levels of growth.

FastTrac® programs are resources for entrepreneurs that have been developed by and with hundreds of successful entrepreneurs who have shared their knowledge, insights, and stories so that others might learn from them. In 1998 FastTrac® won the Small Business Administration's Model of Excellence Award for Entrepreneurial Education.

In 2006, CIECD conducted several programs with a number of success stories:

- We had fifteen (15) participants to complete a program held at Midlands Technical College. As a result of participating in the program, owner Greg Talbot of Eurolux Antiques further diversified his business by expanding their web presence. This business strategy has increased Eurolux's sales of European antiques significantly.
- Ruby Lancaster, owner of an independent insurance agency and boutique in Barnwell has further diversified her line of business by opening a coffee shop in the downtown area.
- Kerri Newsome, who was formally a part-time waitress, formed a partnership with two other individuals and opened a restaurant on the square of downtown Barnwell.
- Prior to participating in the program Jennifer Griffitt had a booth in an existing day spa. After completing the training, Jennifer along with a partner, opened a day spa in Barnwell that has multiple amenities.
- The Institute coordinated a Market Analysis & Branding Charrette for the Town of Cheraw in March 2006. The process consisted of seven input sessions that provided information from community members to the team of planners, design architects and community development specialists. The Charrette process represents one step in establishing a vision for the community that will guide future decision making and resource allocations.

As a result of the input sessions and a detailed market analysis, the design team developed a report with marketing and branding recommendations for the community to aide in strengthening and sharing the richness of the community's culture. The team also developed six implementation strategies in the form of recommendations to provide a vehicle for moving forward. Based on the strength of the recommendations developed by the design team, the Town of Cheraw has secured an \$844,000 Opportunity Grant from the Department of Commerce. The total project impact is \$1.2 million in complete funding. We also conducted similar activities in the municipalities of Chesterfield and Pageland.

- Through the efforts of our Community Development Agent in Barnwell County, CIECD in partnership with the Southern Carolina Regional Development Alliance was success in securing funding to hire an Economic Development Agent in the Allendale, Bamberg, Barnwell and Hampton Counties. The establishment of this Economic Development Agent position is made possible by Clemson University and the South Carolina Regional Alliance (SCA) working collaboratively to provide the necessary funding for its creation.



The Economic Development Agent will work with SCA's Marketing Director in the development and implementation of the newly formed Ambassador Program, which brings the region's foremost experts, with industry-specific knowledge, experience, and skills into the economic development arena as leaders in the marketing and recruitment efforts of the region.

- CIECD was approached by Beaufort County Council to conduct a Fiscal Impact Assessment on the proposed annexation of two large parcels of land in Northern Beaufort County. According to the U.S. Census Bureau, Beaufort County was the fourth fastest growing county in the state from 2000-2005. The Impact Assessment focused on two development scenarios: one with relatively large households consisting primarily of families with students, and the other with relatively small households consisting of childless retirees. Additionally, we assessed the likely impact of the development on the Marine Corps Air Station. The results of our assessment were documented in a report and presented to Beaufort County Council in April 2006. A couple of highlights of the report are that under the first scenario the county's project expenditures would exceed the revenue generated by approximately \$164 million; and under the second scenario the county's expenditure would exceed its revenues by \$140 million. While the revenues generated may be sufficient to cover the operating expenditures, the cost of capital improvements will result in deficits under each of these scenarios. This analysis is being utilized by the county as they develop plans for this annexation and proposed development. We have also conducted similar studies in Lancaster and Jasper Counties, the Cities of Aiken, Hardeville, Ridgeland and Conway.

1. There were 121 economic development programs reported for the year.
2. The number of individuals completing education programs was 3,260. Of this number, 2,550 individuals reported increased knowledge. The number of individuals who adopted or planned to adopt economic development practices was 540.
3. The number of individuals who received information through "non-program" contacts such as telephone, office and site visits was 1,126.
4. The number of community leaders who participated in BR&E task groups was 131.
5. The number of collaborative efforts to enhance BR&E totaled 58 linkages.
6. Charleston County Agent secured a \$5.6 million federal grant for the economic assistance to commercial shrimp boat owners for the SC Shrimp industry. \$30,000 was released to fund a pilot project for the Shrimp industry (guidelines for shrimp inspection)

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact - State

**Key Theme - Community Leadership and Economic Development  
Public Issues Education**

a. Description

This project promotes public issues education and the understanding of the process of shaping unified public policy. South Carolina is a state in transition from an agricultural and textile intensive economy with a large rural presence to a state with diversified economic development, a tourist and migrating retiree destination, and global markets. The state faces challenges regarding coastal and lake area development, environmental sustainability, urban sprawl, and the transition of rural areas and a way of life to an urban-orientation. Public disputes are inevitable in such a changing economic, political, and social setting.

Public issues education includes a wide range of topics that must be managed and resolved effectively. Following the best practices of community development can lead to informed decision making and policy development to enhance continued sustainable development and economic development in this state. Extension's role is to provide the public including key leaders at the state and local level with the most up-to-date knowledge and research findings regarding important public issues. Extension agents are trained as group facilitators. The Public Issues Management School served as a facilitation training forum for a large number of agents in community development, natural resources, and agricultural fields. The role of the facilitator is to remain neutral in the face of sometimes heated public meeting discussions regarding critical issues. The Kettering Foundation has provided important educational material and case study practices to enhance the ability of extension agents and specialists to facilitate groups addressing human issues and environmental concerns. Agents and specialists have gained an excellent reputation for successfully facilitating group forums and panels that address a wide variety of controversial issues. These include natural resource issues and public issues related to education, housing, zoning, "smart growth," land use planning, multiple uses of constructed and natural resources such as lake, forest land, nuisance deer, use of pesticides and herbicides, rural-urban interface, urban encroachment on agricultural regions, and other related subjects.

Rural, suburban, and urban South Carolina each has separate issues that need thoughtful consideration. This state's population is increasing by 50,000 annually. The state is becoming more diverse in terms of retiree in-migration as well as that of the Hispanic workforce. Extension is addressing the coastal retiree population, and it will have to increase its program for the Hispanic population in the near future.

This project provides an opportunity to educate audiences about alternative dispute resolution techniques and other conflict management skills are presented to promote effective comprehensive planning and issue management. Public Issues Management School trains participants to become certified facilitators using facilitation, negotiation, and mediation conflict resolution strategies. The curriculum is a 30-hour program that can be customized to meet specific agency or special audience needs.

The program offers models and practice to refine conflict management skills. Public Issues Education also calls for review and interpretation of federal and state legislation with particular emphasis on the Farm Bill and related agricultural and environmental statutes. Formulating public policy that impacts agricultural profitability and production,

sustainable regional economic development, land use, public health, and environmental concerns is a complex process that requires careful facilitation and management. The application of scientific land grant-based information during the public policy decision process has far reaching implications for future generations.

b. Impacts –

The number of public issues educational programs conducted was 67 during the past fiscal year.

The number of individuals completing public issues education programs was 1,694, of which 1,206 reported increased knowledge. Of those who increased knowledge, 441 individuals adopted or planned to adopt practices.

The number of individuals receiving information through “non-program” contacts such as telephone, office, and site visits was 644.

The number of facilitated public meetings addressing public issues was 15.

The number of public appearances used to promote understanding of public issues was 32. Various topical forums were conducted, including one on health care issues, Collaborative Colloquium, Globalization, and American Immigration. National Issues Forums were conducted on illegal drugs and tapings of Public Voice, a national television production on NIF forums on Democracy’s Challenge.

The number of printed materials used to promote understanding of public issues was 35.

13 National Issues Forums were convened or moderated.

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact - State

**Key Theme - Community Leadership and Economic Development  
– Community Enhancement (Tourism)**

a. Description

Community Enhancement includes efforts to address the quality of life and the sustainable development of communities through volunteer and collaborative efforts. Litter programs, beautification, historic preservation, and related efforts that enhance the image and appearance of communities are addressed in the project area. Quality of life concerns and tourism development are significant components of community enhancement. The Heritage Corridor is a four-region area of the state that has placed special emphasis on local asset management and promotion for tourism. This regional designation is recognized by Federal agencies. The Heritage Corridor was created in South Carolina to attract tourism dollars to the band of counties from the foothills to the coast with many historic and cultural features. Rural areas of the state have experienced a shift of jobs and population to urban areas. Many rural areas must rely on tourism, recreation, and non-manufacturing activities for survival.

The South Carolina Design Arts Partnership is a special community enhancement effort. It facilitates a community-based process that results in goal setting to achieve desired

improvements in architectural, landscape, historical, and preservation designs. Many of the state's rural communities are losing tax base. This is reflected in the deteriorating physical appearance of streetscapes, parks, public places, landmarks, and historical sites. This partnership functions in concert with the SC Downtown Development Association, the S.C. Arts Commission, Clemson Extension, historical groups, preservationists, and local government and business leaders to improve and rehabilitate local communities.

The methodology for the Design Arts Partnership includes the use of City and Regional Planning faculty, student interns, and planning class projects through a case study approach. Activities follow a consulting model strategy. Students are graded in terms of their contribution to the project. Community leaders provide continuous input and evaluations of the on-going project. The evaluation process is based on costs, visual features, and collaboration.

Work is in progress to develop production systems and management practices that maintain or increase yields and fiber quality while increasing earliness and reducing production costs of South Carolina cotton producers.

#### b. Impacts

The design and landscape projects (SC Design Arts Partnership) involving an average of 15 participants per site. This effort includes over 380 activities, festivals, and special programs related to community improvement and enhancement. It appears that many individuals are indirectly involved in these community enhancement projects as volunteers and do not attend actual educational programs. Some unofficial reports indicate that between 150-200 community members volunteered for activities that planned and managed the SCDAP landscape, redesign, and rehabilitation programs.

The number of educational programs and activities conducted was 269.

The number of individuals completing education programs in this area was 2,317.

Of this number, 1,279 reported increased knowledge.

The number of individuals who adopted or planned to adopt practices associated with community enhancement and improvement was 430.

The number of individuals who received information through "non-program" contacts such as telephone, office or site visits was 3,887.

324 groups or agencies reported collaborating on a task.

The number of individuals completing SC Design Arts Partnership program was 7.

The amount of funds raised to support local programs and collaborative efforts was \$509,000 for the past fiscal year.

In Region 1, 2, and 3, regional centers with office staff have been established to enhance programs, cultural interpretation, and marketing efforts throughout the region. The Heritage Corridor project has a blacksmith in Region 2 construct artistic ironworks for sale. The Interpretation Center is operational in the Foothills Region. The Heritage Corridor Passport Project educates public school teachers about the Corridor, an African American Trail has been identified; an Agricultural Heritage Center Farm-City Day was

scheduled, the Dorn Grist and Flour Mill restoration project was planned, and many brochures and news articles were prepared. Other projects included Communities That Care, Beach/River Sweep, tree planting along Riverwalk, and pruning project. \$15,000 was raised toward the signage project for Community Beautification Project. The Exchange Club of Charleston distributed more than \$500,000 to organizations across the area to address community issues. One Neighborhood and County Litter Clean up raised \$8,000. Agents also met with Latino leaders helped them identify on-line and other sources they can use for community concerns.

Landscapes for Learning

Technical Contributions:

1

- c. Source of Federal Funds - Smith Lever 3b&c and Hatch
- d. Scope of Impact – State

**Key Theme: Community Leadership and Economic Development (1890)**

Program Components

Small Business Development  
Youth Entrepreneurship  
Computer Literacy

**Key Theme: Community Leadership and Economic Development – Small Business Development Programs (1890)**

**Funding:** USDA / RBS Cooperative Agreement No. RBS 05 - 12 (\$100,000)

**Key Theme: Small Business Development Programs – Technical Assistance (1890)**

The programs address the needs of citizens of South Carolina wishing to start or expand small businesses and cooperatives. We serve the entire state, but the primary target areas are a 13 county area within the cluster areas of Hampton, Marlboro, Orangeburg and Williamsburg Clusters. Assistance was provided to small businesses and cooperatives in the areas of marketing, analysis, development, operations, customer service, finance, planning and international expansion. Local resources were developed and expanded to link local education institutions, government and private businesses to accomplish the program goals. The purpose of the program is to:

1. Provide in-depth quality assistance to small businesses and cooperatives in all areas that promote growth, expansion, innovation, increased productivity and management improvement;

2. Develop and expand the unique resources of the local education system, the private sector and government to provide services to the small business and cooperative community that are not available elsewhere;
3. Contribute to the economic growth of the community and create a broad-based delivery system of goods and services; and
4. Link resources of local, state and federal governments with those of the local education system and the private sector to meet the needs of the small business and cooperative community.

**Impact:** Bringing about significant, widespread change in rural South Carolina requires the dedication of many organizations. That is why the 1890 Program partnered with government agencies, business and finance leaders, economic development professionals, educators and researchers, members of the faith community, and non-profit and grassroots leaders. Through a series of workshops and training sessions, 74 clients were served by the Rural Business and Economic Development Program, during the fiscal year 2005-2006 (October 1, 2005 – September 30, 2006). The clients received skills in the areas of marketing, human resources, operations, accounting, bookkeeping, finances, international trade and other specialized areas of business management. Extension Agents made 50 business field trips / consultations in Marlboro, Marion, Dillon, Sumter, Lee, Calhoun, Orangeburg, Hampton and Dorchester counties. As a result of the technical assistance the clients received, 8 loan applications were completed and six were funded in the amount of \$320,000.00. Private organizations charge individuals \$1,000.00 to \$3,000.00 to package their loans for them. As a result of the services the clients received, they saved between \$8,000.00 and \$24,000.00 dollars.

### **Success Stories**

Youman Brothers Transport is a transport company located in Estill, SC. The company was started by Kendall Youmans, a 23 year old truck driver. The company specializes in the transportation of small freight (less than 10,000 pounds). The Rural Entrepreneurial Outreach Initiative (REOI) helped Mr. Youmans in starting his business by assisting him in writing a business plan and securing financing. With the help of REOI, Mr. Youmans was able to secure funding in the amount of \$35,000.

Today's Fashion is an urban clothing store located in Manning, SC. The company was started by Jerome Mcrae, a former textile worker. The company specializes in name brand clothing and accessories that appeal to youth and hip hoppers. The Rural Entrepreneurial Outreach Initiative assisted Mr. McRae in securing financing for his business in the amount of \$25,000.

### **Key Theme: Small Business Development Programs -- Small Business Workshop Series (1890)**

The Small Business Workshop Series combines the business knowledge of University faculty and staff into a collection of workshops to assist small business owners and operators with management skills and methods required to start, maintain or expand a successful business. By attending the workshop series, entrepreneurs can gain the insight needed to turn their business ideas into a reality. The workshop series consist of 7 sessions.

### **Small Business Workshop Series:**

The 1890 Program along with its partners conducted a workshop series in Mullins, Orangeburg and Hampton, SC. There were a total of 32 participants. The sessions included:

**Session 1: *Starting or Expanding your Business*** - The seminar discussed the obstacles of going into business. It helped participants figure out if business ownership was right for them. Participants received brief instruction on business plan writing and lending. In addition, tips were given on how to assess business opportunities.

**Session 2: *Business Finance*** - Locating financing and preparing a loan proposal for presentation to lenders was covered in the seminar. In addition, participants learned about the seven main lending requirements that banks use in assessing credit worthiness — credit score, capacity, capital, collateral, conditions, character, and confidence. Tips on building and improving credit and establishing collateral were also discussed.

**Session 3: *Marketing Essentials*** - Participants received information on how to identify target markets, estimating market size, preparing sales projections, understanding customer needs, selecting media, pricing of products and developing a marketing budget. Participants also obtained assistance with the development of a marketing plan.

**Session 4: *Business Bookkeeping & Accounting*** - Participants learned how to keep accurate records by setting up a bookkeeping system that could summarize transactions for an accountant. They also gained knowledge on deductibles, depreciation and financial statements.

**Session 5: *Human Resources (Recruiting, Training and Motivating Employees)***- Participants learned about recruiting, selecting, compensating and managing employees. Participants received assistance with preparing a personnel plan.

**Session 6: *Business Customer Service*** - Good customer service is the key to a successful business. The seminar gave tips on how to deal with customers one-on-one. Participants received assistance with preparing a Customer Service Plan.

**Session 7: *Accessing Global Markets*** - There is presently an increasing interaction of national economic systems all over the world through the growth in international trade, investment and capital flows. The interaction is seen by many as a worldwide drive toward a globalized economic system. Furthermore with the tremendous development in modern communications and information technologies, knowledge and culture can be shared around the world simultaneously. Globalization is an economic, political and socio-cultural phenomenon which has an increasing impact on the way enterprises function whether at the local or global level.

**Session 8: *Technology in Business*** - Most business owners know that preparing a business plan will help ensure the success of their company. A business plan provides a road map to guide the business from startup, through changes and ultimately, to success.

The same could be said of a business technology plan, which helps ensure that companies successfully deploy innovative technology solutions to resolve business needs and problems in a rapidly changing, competitive market.

**Impact:**

Bringing about significant, widespread change in rural South Carolina requires the dedication of many organizations. That is why the 1890 Program partnered with government agencies, business and finance leaders, economic development professionals, educators and researchers, members of the faith community, and non-profit and grassroots leaders. Out of the thirty two participants in the workshop series, eleven were small business owners who all acknowledged that the workshop series really benefited them and would help them be more effective business owners. The remaining twenty one were aspiring business owners and they increased their knowledge base of business ownership.

**Key Theme: Community Development Initiative-CDI (1890)**

Successful economic development begins with effective planning and a strategic view of a community's future goals. Developing an economic development plan prepares a community for future changes and addresses immediate needs facing an area.

The department works in partnership with several organizations to offer assistance to communities, municipalities, counties, organizations and local economic development groups to help ensure that they can meet their long-term objectives. By encouraging and facilitating public and private partnerships the staff coordinates those efforts with federal, state and local partners to leverage limited funds and find effective solutions for local needs.

Non-profits, agencies, municipalities, and community based organizations are the backbone of social services in our society. When the organizations suffer from management issues, the entire community suffers. The Community Development Initiative (CDI) was established to assist the organizations in addressing management issues, thus ensuring that South Carolina communities remain vibrant and responsive to the needs of its citizens.

Through the CDI, organizations may receive assistance with a variety of topics such as increasing organizational effectiveness, strategic planning, asset mapping, grant writing, and visioning. The CDI delivers assistance through one-on-one counseling sessions along with workshops and trainings.

**Educational Areas:**

**A. Strategic Planning**

The strategic planning process facilitated an increased awareness by participants of the target communities involved in the strategic planning process to collectively improve business practices and sustainability of individuals and community. The process instilled ownership and support for the creation of new businesses and jobs of which the interaction and expert information shared on funding sources and opportunities serve as stimuli for additional economic development.



## B. Board Basics

The seminar provided an overview of what it takes to establish a non-profit organization and the basic roles and responsibilities of board members.

## C. Community Visioning

The workshop assisted communities in developing a vision for the future, setting priorities and planning action steps to reach their goals.

## D. Starting a Nonprofit Organization

The seminar taught about the steps to starting a new nonprofit organization. Individuals learned about state and federal filing requirements for establishing a new organization.

**Impact:** Bringing about significant, widespread change in rural South Carolina requires the dedication of many organizations. That is why the 1890 Program partnered with government agencies, members of the faith community and non-profit and grassroots leaders. Through a series of workshops and training sessions, 20 organizations were served by the Rural Business and Economic Development Program, during the fiscal year 2005-2006 (October 1, 2005 – September 30, 2006).

## Success Stories

The Hope Center for Women and Children is a nonprofit organization in Orangeburg, SC. The organization was founded by Margie Jenkins to assist women and children in crisis situations with regaining stability and developing life skills. The Rural Entrepreneurial Outreach Initiative assisted the organization in obtaining incorporation and 501(c) 3 tax exempt status. Since receiving tax exempt status, organizational fundraising and capacity has increased dramatically. Last Christmas, the organization was able to provide gifts for over 130 needy children.

Talemon Corporation of South Carolina is a nonprofit public service organization with headquarters in Columbia, SC. The Rural Entrepreneurial Initiative assisted the organization in developing an entrepreneurial training and revolving loan fund in Spartanburg, SC. Talemon received a Rural Business Enterprise Grant (RBEG) from USDA for approximately 100,000 to start the program. Currently, the program has about 15 participants.

## Key Theme: Youth Entrepreneurship (1890)

The Entrepreneurship Expo provided high school seniors the opportunity to learn about the rewards of business ownership. The goal was to cultivate world-class business leaders who have strong character and the ability to make a difference in the world around them. The Entrepreneurship Expo taught young people about the principles of entrepreneurship through workshops, competitions and rewards. The students represented twelve high schools from within several cluster areas of Hampton, Marlboro, Williamsburg and Orangeburg.

Workshops: Throughout the Expo, there were multiple workshop sessions. Participants learned about developing business ideas, writing a business plan and operating a business. The

Entrepreneurship Expo featured the following sessions:

- Is Business Ownership Right for Me?
- Business Planning
- Marketing and Advertising
- Teambuilding
- Business Etiquette

Competitions: Participating high schools had the opportunity to enter teams into the Entrepreneurship Expo Business Plan Competition. Teams prepared business plans and presentations to compete with other teams from across the state. First, second, and third place prizes were given.

**Impact:** Bringing about significant, widespread change in rural South Carolina requires the dedication of many organizations. That is why the 1890 Program partnered with government agencies, business and finance leaders, economic development professionals, educators and researchers, members of the faith community and non-profit and grassroots leaders. The Entrepreneurship Expo realized the following results:

- 206 students participated in the Expo;
- 88 percent of the participants “agreed or strongly agreed” they would be able to utilize the Expo information in their current or future business;
- 92 percent of the participants “agreed or strongly agreed” the Expo was very helpful and informative;
- 82 percent of the participants “agreed or strongly agreed” they would recommend the Expo to others.

### **Key Theme: Computer Literacy -- Introduction to Computers and Microsoft Word (1890)**

The course is designed as an introduction to the world of computers as well as the popular Microsoft Word software application. Participants had the opportunity to learn basic to intermediate level computer skills. The spectrum of advancement and employment opportunities was broadened because they would otherwise not qualify, due to a lack of computer experience. Participants learned how computers function, how to operate software applications on a computer, how to navigate and search the Internet and how to utilize the features of Microsoft Word. No prior experience was required. The program provided a stand-alone, hands-on introduction to personal computer hardware and operating systems for:

- (1) the beginning computer professional,
- (2) computing to improve the chance for success in an educational environment, (3) improved chances for success in the workplace, or
- (4) computing at home.

Computer literacy classes were taught at designated locations in the Orangeburg area. The classes included training in the following areas: computers, keyboarding, Internet and email. The staff assisted in setting up email accounts based on their respective needs for personal or business solutions. Computer literacy training was offered to ensure continuous education and

promote economic growth. After completion of the class, persons without access to computers were routed to community-based organizations where computers were accessible. Partnerships were formed with schools, public libraries, community action agencies and other public centers for the purpose of allowing community residents to have access to computers. Further computer access will be afforded to participants for business and general education information. Computing fundamentals included hardware, software, Internet, email, search engines and operating systems (focusing on Windows). Key applications focused on word processing and spreadsheets with minor information regarding databases and presentation software.

**Impact:** There were a total of 62 students to attend the 2006 computer sessions with the majority of them excited about what they had learned. Participants had renewed confidence in themselves for what they were able to accomplish in the class. Possibilities of what could be accomplished in the future was also expanded. Some students went on to enroll in other educational courses, while others found that their new skills could position them for a wider range of job opportunities. Others learned how to do their daily tasks more quickly and efficiently.

### **Key Theme: Home Buyer Education Workshop Series Description (1890)**

The Home Buyer Workshop Series is designed to provide information and counseling to first time homebuyers to better prepare them to pursue homeownership. Several local bankers, attorneys and realtors, credit counselors and other industry leaders are engaged to provide technical and educational assistance to the participant. After eight sessions of training, the participants received certificates of completion, making them eligible to receive grant funding that would provide either a down payment or closing cost assistance towards the home purchase.

Brief descriptions of the classes were as follows:

#### **Knowing and Understanding your Credit**

The course was designed to explain what credit is and why having good credit is so important when you want to buy a home. The course also provided useful information about:

- Credit reports and credit scoring
- Improving your credit
- Creating a nontraditional credit history
- Using a budget, checking account and savings account to take control of your credit

**Choosing the Mortgage that's Right for You** is a course that takes you through the shopping process in three steps. You will find out what a mortgage is and how to calculate your buying power, the different types of mortgages, where to shop for a mortgage and how to compare mortgage terms. The course also provided useful information about:

- What is your buying power?
- What is a mortgage loan?
- Four factors that affect your mortgage payments.
- How large a down payment can you afford?
- How large a monthly mortgage payment can you afford?

#### **Borrowing Basics, What You Don't Know Can Hurt You**

The course assisted the potential home buyer in understanding the facts about loans and the loan process. It equipped the potential borrower with the knowledge to recognize predatory loans and predatory lending practices. Upon completion of the course, the borrower had a better understanding of how to select the loan most appropriate for them and their long term financial stability.

### **Opening the Door of your Own**

The course introduced the homebuyer to the steps a lending institution uses to decide if they qualify for a mortgage loan. The course helped the homebuyer analyze their personal financial situation by addressing the following questions.

- How steady is your job history?
- Do you pay your bills on time each month?
- Do you have a credit history?
- Do you have money saved for a down payment?
- Can you afford to pay a mortgage each month?

### **Budget Counseling**

The Budget Counseling course was designed to help the participants develop good financial management skills that were critical to planning for homeownership and sustaining the mortgage payments in the future. The course includes information on the following:

- Budgeting
- Setting financial goals
- The use of credit
- Insurance
- Investments
- Taxes
- Retirement planning

### **Predatory Lending**

In addition to being aware of the traditional, standard mortgage products, the potential homebuyer needs to be aware of other mortgage products and lending practices that can be beneficial or detrimental to their credit and financial stability. The course was intended to educate the participants on the various predatory practices and how to recognize predatory lending activities. Additionally, the participants received a better understanding of the differences between conforming, non-conforming and predatory loans. The course also addressed refinancing and how to take advantage of equity in a home.

### **Foreclosure Prevention**

The course was designed to educate the homebuyer on the appropriate steps to avoid foreclosure. The clients were introduced to the various loss mitigation options and instructed on how to seek mediation and negotiation to avoid default and foreclosure. The course addressed delinquency, default and foreclosure concepts. The curriculum materials were based on the Housing and Urban Development guidelines. The agency's foreclosure counseling was provided on an individual basis and is an ongoing service for graduates of the Home Buyer Education Course.

### **Post-Purchase Counseling**

This service reiterates the need to develop and follow a budget and practice good credit management. Service was provided to homeowners to assist them in recapturing good budgeting skills that may have been lost over a period of time. Some graduates needed a refresher course as well as training in other skills of home ownership. Some areas covered in post purchase counseling are:

- Maintenance & Repairs
- Record Keeping
- Energy Conservation
- Safety Tips
- Budgeting
- Refinancing
- Protecting Equity

### **Impact**

As a result of completing the Home Buyer Education Workshop Series, one participant achieved homeownership, six pursued grant funding to assist them with a down payment and/or closing cost assistance and several continued to receive credit counseling.

### **Success Story**

The agency hosted two Home Buyer Education Workshops. Forty participants registered for the four-week workshop series. Facilitators include two local attorneys, three local bankers, a credit counselor, a licensed builder and contractor, a fair housing investigator from the SC Human Affairs Commission, an equal opportunity officer from the U.S. Department of Housing and Urban Development and a mortgage specialist from SCSU's 1890 Extension Program. Thirty-eight participants completed the program successfully and continued to receive budget and credit counseling from the agency.

### **Key Theme: Owner-Occupied Rehabilitation Program Description (1890)**

The Owner-Occupied Rehabilitation Program was designed to provide financial assistance to low and very low-income homeowners in addressing disrepairs to their homes that may be posing health and safety hazards. Participants were required to meet income guidelines set forth by the U.S. Department of Housing and Urban Development (HUD) and required to own and reside in the approved dwellings. Applicable repairs included, roof replacement, electrical upgrades, heating and air conditioning unit repair or replacement, flooring, window replacements, septic system repair/replacement and handicap accessibility to name a few. The agency conducted a bid tour among local licensed contractors and oversees the work from start to finish. Additionally, the agency received favorable feedback with regards to a proposal submitted to the Federal Home Loan Bank of Atlanta requesting \$200,000 to assist 25 residents with necessary home rehabilitation.

### **Impact**

Through the South Carolina Housing Finance and Development Authority's (SCHFDA) Housing Trust Fund (HTF) Program, the agency provided home rehabilitation to twenty-three (23) homes in Orangeburg County, improving the standard of living for approximately forty-nine (49)

individuals. As a result, four families who were displaced were able to move back into their once unlivable homes; nine individuals were provided with new heating and air conditioning units where there once was only window and portable units; eighteen homes received new roofs; eight of the homes received improved plumbing systems; twelve homes received handicap ramps and other handicap accessibilities; and nearly all of the homes received improved or replaced flooring. Ninety-nine percent (99%) of the assisted families reported being pleased with the services. Two individuals who received rehabilitation services have assisted the staff with presentations on the program.

**Success Story**

The Northeastern Corridor of Orangeburg Community Development Corporation was successful in obtaining grant funding for three (3) Community Development Block Grants and seven (7) Owner-Occupied Emergency grants from SC Housing Finance and Development Authority’s (SCHFDA) Housing Trust Fund (HTF) totaling nearly \$400,000. SC Housing Trust Fund provided forgivable grants to low- and very-low income individuals to address the repair needs that created unsafe, indecent and unsanitary living conditions. As well, the agency had partnered with the U.S. Department of Rural Development to obtain additional funding for those families residing in rural areas. Two families were identified who were displaced from their dilapidated homes and required additional funding to adequately address the needed repairs.

**Funding Sources**

<p><b>SC State Housing Finance and Development Authority</b>          Community Development Block Grant</p> <ul style="list-style-type: none"> <li>● Seven Rehabilitation Projects Completed</li> <li>● CDC earned \$15,750 in developer’s fees</li> </ul>	<p><b>June 2006</b>          \$120,750</p>
<p><b>SC State Housing Finance and Development Authority</b>          Major Rehabilitation Construction Grant</p> <ul style="list-style-type: none"> <li>● Two Rural Projects Completed</li> <li>● CDC earned \$3,000 in developer’s fees</li> <li>● Provided \$7,500 to each rehab recipient</li> </ul>	<p><b>June 2006</b>          \$56,000           \$15,000</p>
<p><b>SC State Housing Finance and Development Authority</b>          Rental Housing Program</p> <ul style="list-style-type: none"> <li>● CDC aquired three duplexes</li> <li>● CDC earned \$10,000 in developers to rehab units</li> </ul>	<p><b>March 2006</b>          \$191,000</p>
<p><b>SC State Housing Finance and Development Authority</b>          Community Development Block Grant</p> <ul style="list-style-type: none"> <li>● Seven homeowners will be selected to receive rehab</li> <li>● CDC will earn \$15,750 in developer’s fees</li> </ul>	<p><b>December 2006</b>          \$155,750</p>
<p><b>SC State Housing Finance and Development Authority</b>          Owner-Occupied Emergency Rehabilitation Grant</p> <ul style="list-style-type: none"> <li>● Seven homeowners received emergency rehab</li> </ul>	<p><b>Sep. – Nov. 2006</b>          \$42,000</p>

- CDC earned \$3,500 in developer's fees

**Federal Home Loan Bank of Atlanta (FHLBA)** **December 2006**  
Affordable Housing Program \$200,000

- Ten first-time homebuyers will receive grant assistance
- CDC will earn \$25,000 in developer's fees

**South Carolina Bank and Trust (FHLBA Member Bank)** **December 2006**  
Donation for programmatic costs w/ FHLBA Award \$1000

**New Mt. Zion Baptist Church** **September 2006**  
Donation \$5,000

**Key Theme: Community, Leadership and Economic Development (1890)**

**TITLE: Understanding the Effects of Citizen Participation and Community Development in Selected Rural and Urban Cites in South Carolina**  
**Project # SCX-121-02-04** **Project Duration: May 2004 – May 2008**

Community development policies are the core of local politics and public policy and have profound consequences for American communities and the material well-being of low and moderate income people. Targeted toward low income communities, community development policies can make communities a better place to live by making them healthier and safer. Community development policies create opportunities, stabilize housing and commercial investment, and enhance the ability of citizens to hold public officials accountable. The study focuses on determining what types of development strategies are available, who benefits from development policies, the ingredients necessary for successful business development, and the development capacity of local governments. The research compares objective indicators of community development, since 1970 in all neighborhoods in six cities in South Carolina, by examining each city's policies regarding, land use, economic development, public facilities, housing, public works, and public services.

The study will determine the extent to which low and moderate income neighborhoods benefit from local community development policies. A survey on community and economic development adapted from the survey instrument developed by the International City/County Municipal Association will be mailed to each city's chief administrative officer. It is anticipated that 180 to 220 individuals will be interviewed. The economic well being of neighborhoods is being assessed in terms of the number of residential loans per housing units and median property values. The independent variables include political structure, population characteristics, city development index, political participation, etc. Results of the study can provide data, information and analysis to assist policy makers in formulating development policies that ensure low and moderate income neighborhoods as major beneficiaries.

The research project is designed to answer the following questions: What type of community development project is most useful to cities and low and moderate income neighborhoods? Who are the major players in community development decisions? How successful have cities

been in recruiting private investment and who benefits? What are the key ingredients for the successful recruitment of industry? What is the role of politics, public policy, and social structure in shaping community development policies?

**IMPACT:** The study will add significantly to our understanding of community development. First, the study explores six cities over a period ranging from 1970 to the present. The time frame seems adequate to assess possible changes in community development strategies, both short-term and longer-term, and the extent to which there are patterns and consistencies in community development policies in South Carolina. Second, by examining several cities, it is possible to explore the effects of certain contextual variables-social structure, economies, decision makers, citizen participation-that may have influenced community development strategies. The approach will provide a comprehensive understanding of community development in South Carolina.

The study can provide data, information, and analysis to assist policy makers in formulating development policies that ensures low and moderate income neighborhoods as major beneficiaries. By looking at various community development projects and strategies in different cities, the study will provide useful information regarding the most appropriate strategy to revitalize poor neighborhoods and enhance the quality of life of low and moderate income people. The data and analysis generated from the research have policy implications for the 1890 Extension Program. The results can assist 1890 Extension in its community development efforts. Thus, the project stands to have an impact on the decision making process and improve the quality of development policies and the quality of life and low and moderate income populations and neighborhoods.

**PERSONNEL:** There is one research assistant and four (4) undergraduate students who majored in Political Science and English.

**COLLABORATIONS:** None

**SOURCE OF FEDERAL FUNDS:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program

**SCOPE OF IMPACT:** Rural residences of South Carolina

**Key Theme: Community Leadership and Economic Development – (1890)**

**TITLE: Assessing Existing Social and Educational Programs for Hispanic Population in South Carolina**  
**Project # SCX-824-05-03 Project Duration: October 2003–September 2007**

The research project is vital to identifying existing social and educational services (*Food Stamp, Medicaid, TANF, and GED*) that are being utilized by the Hispanic population in selected counties in the state of South Carolina. Secondary data sources were utilized to establish evidence based data concerning Hispanics within the state. The targeted audiences consist of



Hispanics who are 12-65 years of age, recently immigrated to South Carolina, equal distribution of gender, and a resident of one of the 23 selected Hispanic communities with more than 1,000 residents in its county. The 23 counties were broken down into four notable regions of the state (*Piedmont, Midlands, Pee-Dee, and Coastal*). Conducting such research enabled the 1890 Extension services to connect to the Hispanic community, and to educate and inform both the state agencies and selected communities, about the impact and/or lack of social and educational services provided to the Hispanic community. Furthermore, the information allowed the state agencies to benchmark their progress toward serving the tremendous influx of Hispanics into South Carolina since 1990. Such information should foster new policies to develop appropriate measures in meeting the needs of the Hispanic population within the selected counties, as well as, the entire state of South Carolina.

**Personnel:** There is one graduate assistant majoring in counseling education, three undergraduate students (one majoring in psychology, one in social work, and one in computer science).

**IMPACT:** The project has produced tangible evidence based research of the following nature: (1) developed several new scales as the assessment measures of the (Food Stamp, Temporary Assistance of Needy Families (TANF) and Medicaid Programs for Hispanics in the 23 selected counties, which were grouped into the four notable regions (*Piedmont, Midlands, Pee-Dee, and Coastal*); and developed graphical representations by using scales to visualize the assessment of the programs; (2) performed statistical analysis (*Descriptive & Inferential Statistics*) to evaluate the programs; (3) assisted in providing a vehicle for state agencies: South Carolina Department of Social Services (*DSS*), and Department of Health and Human Services (*DHHS*), to benchmark their progress; (4) assisted in fostering new policies to develop appropriate measures in meeting the needs of the Hispanic population; and (5) developed a State map using GIS graphs to display the Hispanic Population in the seven 1890 Clusters of Research and Extension Programs, which makes clear the plight of Hispanics in South Carolina, and their impact upon the State Social Services Programs. A sampling of subjects was drawn from the four notable regions of the state: **Piedmont:** *Anderson, Cherokee, Greenville, Laurens, Oconee, Spartanburg, Pickens, and York;* **Midlands:** *Aiken, Lexington, Greenwood, Newberry, Richland, and Saluda;* **Pee-Dee:** *Florence, Horry, and Sumter;* and **Coastal:** *Beaufort, Berkeley, Charleston, Dorchester, and Jasper.*

**PERSONNEL:** Currently to date, I have one graduate student, Oni Hasan-McDade, majoring in Counseling Education, and five undergraduate students, two of whom have worked with the research project; graduated. Olive Aneno born in Uganda, Central Africa, received a full athletic scholarship for volleyball, majored in Social Work and graduated in spring 2006 with a G.P.A. of (3.4), and continued her studies at the University of Georgia on a full Scholarship/Assistantship to obtain a master's degree in Social Work. Another undergraduate student, Andrew Thompson, completed his Bachelor's of Science degree in Computer Science and Mathematics at South Carolina State University last spring, 2006, with a G.P.A. of (3.7). He is presently employed with Software Developer, developing web solutions with C #, ASP.net and T-SQL in Nashville, TN.

Currently, the research undergraduate students are Gisel Brito, a junior majoring in Psychology and a Political Science minor and Hector Arroyave, born in Mexico City, received a full athletic scholarship for golf, and is a freshman majoring in Accounting and a minor in Business Economics with a G.P.A. of 3.8. In addition, Rocio Juarez, born in Argentina, South America, received a full athletic scholarship for tennis, is a first semester freshman whose major is Business Management.

### **SUCCESS STORIES:**

**Oni Hasan-McDade** a graduate research intern for 1890 Research completed her Bachelor's of Science degree in Psychology from the University of Alabama at Birmingham in 2003. Currently, she is a candidate for a Masters of Education in Counselor Education at South Carolina State University, earning a 3.9 G.P.A. and becoming a 2006 inductee of Chi Sigma Iota Honor Society. Oni is looking ahead to graduation in May 2007. After graduation, she plans to pursue her doctorate at the University of Arizona. Among her many accomplishments is a 3<sup>rd</sup> place graduate poster presentation for the Honor Society of Agriculture, Gamma Sigma Delta, during the 63<sup>rd</sup> Annual Professional Agriculture Workers Conference, at Tuskegee University in 2005. In addition, the student also maintains current membership in several professional organizations that include the American School Counseling Association; South Carolina School Counseling Association; South Carolina Counseling Association; South Carolina Association for Humanistic Education and Development; and Southern Poverty Law Center Supporter.

**Andrew Thompson** is an ex-web page designer technician for 1890 Research. He completed his Bachelor's of Science degree in Computer Science and Mathematics at South Carolina State University last spring, 2006, with a 3.65 G.P.A. and was involved with the newsletter editor for South Carolina State University Chapter of National Golden Key Honor Society, Webmaster for the Student Government Association, and President for the Association for Computing Machinery. Mr. Thompson also received the Dwight D. Eisenhower Fellowship, Sharon D. Rickenbacker Memorial Award for Outstanding Leadership, Who's Who Among American College Students, and the Bulldog Technology Award for University-Wide Technical Assistance. Currently, he is employed with Software Developer, developing web solutions with C#, ASP.net and T-SQL in Nashville, TN.

**Gisel Brito**, an undergraduate Psychology major and Political Science minor at South Carolina State University. She has accomplished several achievements throughout her journey at SCSU. A native from La Havana, Cuba, she lived in Chile for most of her adolescence before moving to El Salvador where she lived for one year. Mrs. Brito obtained a full athletic scholarship in the field of tennis. She will be graduating with honors 4.0 GPA in December, 2007. Among her many accomplishments are being the recipient of the Female Scholar Athlete of the Year for 2005-2006 Golden Medallion for the 2006 and 2007 school years; First place for the undergraduate student poster presentation of the Honor Society of Agriculture, Gamma Sigma Delta at Tuskegee University, during the 64<sup>th</sup> Annual Professional Agriculture Workers Conference; and Recipient of the Arthur Ashe Award First Team 2006. The student is also a member of the Honors Program at SCSU, President of the National Honor Society in Psychology, Captain of the Women's Tennis Team at SCSU, and a member of several organizations including Minorities in Agriculture, Natural Resources and Related Sciences (MANRRS), Golden Key Honor Society, and the All-American Scholar Society.

**COLLABORATIONS:** To date, partnerships were established through Memorandums of Understanding for access to secondary data sources with the following:

- ✚ The South Carolina Department of Social Services (*DSS*)
- ✚ Department of Health and Human Services (*DHHS*)
- ✚ South Carolina Office of Research and Statistics (*ORS*)
- ✚ South Carolina Office of (*Adult Education*) and General Education Diploma (*GED*)
- ✚ South Carolina Commission for Minority Affairs (*Hispanic ~Program Coordinator*)
- ✚ Society for Advancement of Chicanos and Native Americans in Science (*SACNAS*)
- ✚ South Carolina Rural Health Research Center (*SC-RHRC*)

**SOURCE OF FEDERAL FUNDS:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program

**SCOPE OF THE IMPACT:** State and National

**Key Theme: Rural Community Economic Development**

**TITLE: A Study of Chapter 13 and its Chapter 7 Derivative Bankruptcy Filings in South Carolina for the Period 1996-2003**  
**Project# SCX-522-11-04 Project Duration: January 2005 – January 2008**

Data are collected from the Bankruptcy Filing archives in Atlanta, Georgia as well as South Carolina for more recent cases. Data collection is still going on because cases filed before the year 2000 are available only as hard copies in the Federal Archives in Atlanta. Cases filed after that date are computerized and are available at the head office of the District of South Carolina of the First Circuits Court of appeals which is located in Columbia, South Carolina.

So far, 194 archival files have been identified by a random sampling approach. Not all files can be studied because the number of filers between 1996 and 2000 is huge and information is available only as hard copies. One has to physically go to the archival office (by appointment only), randomly select files and make copies of essential pages that contain vital information. Such information relates to the filer's financial standing, debt structure, chapter filed, case disposal decision and address at the time of filing. The information collected will be studied and analyzed later.

Archival files sampled so far are 194 and 278 more current files have been picked. A large number of files have to be initially sampled because when surveys go out in the near future, it is likely that most of the old addresses will no longer be valid. Therefore, several hundred surveys will be sent out to get a reasonable percentage return of filled-in surveys. We are expecting a response rate of about 20%.

Many files are not complete and cannot be included in the sample even after they have been selected in the random process. For this reason, the sampling process takes a long time. Also,

many of the files are incomplete and filers are not easily reached. Some of the filers are reluctant to talk about their cases. The main hindrance is the huge size of some of the files to be scrutinized for usable data. Another problem is travel to different centers is time consuming and many hours are spent in each office from where data is collected.

**IMPACT:** The project has helped two students financially every semester, since 2006. The assistance impacts the students' financial situations.

**PERSONNEL:** Two undergraduate students majoring in business.

**COLLABORATIONS:** None

**SOURCE OF FEDERAL FUNDS:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program

**SCOPE OF THE IMPACT:** State

**Key Theme: Rural Community Economic Development**

**TITLE: The Impact of Quality of Life and Business Climate Variables on  
Development and Employment Growth in South Carolina  
Project #: SCX-522-08-01 Project Duration: October 2001–September 2006**

The basic objective of the project is to analyze the impact of the quality of life and business climate variables on per capita income and employment growth in various counties of South Carolina. In addition, there would be a special focus on the factors for ameliorating conditions in the least developed rural and local towns, and counties in the state. The specific objectives of the project are as follows:

1. To analyze the pattern of per capita income growth in the counties of South Carolina.
2. To analyze the pattern of employment growth in the counties of South Carolina for all industries combined, and for industries such as manufacturing, transportation and public utilities, finance, insurance and real estate, and services individually.
3. To analyze the quality of life variables in the various counties of South Carolina.
4. To analyze the fiscal conditions, the market environment, and the behavior of cost factors such as wages and energy prices in the different counties of South Carolina.
5. Analyze the impact of quality of life and business climate variables on per capita income growth in the counties of South Carolina.
  - a. Analyze the impact of quality of life and business climate variables on employment growth in the counties of South Carolina.
  - b. To determine the joint significance of the quality of life variables and subsets of the business climate variables in explaining per capita income growth.
  - c. To conduct a series of workshops for local government officials, community leaders, and county extension agents on the elements for promoting economic development and growth within the urban and rural communities of South

Carolina.

**IMPACT:**

The study investigated the impact of quality of life and business climate variables on employment at the different sectors of South Carolina. The study finds that variables such as crime, high school graduation rate, percentage of baccalaureate degree holders, property tax and per capita income are important influencing the employment of several sectors of the economy

**PERSONNEL:** There were five (5) undergraduate and one (1) graduate student that worked on the research project. Students majored in Agribusiness, Management, and Economics.

**PUBLICATIONS/PRESENTATIONS:**

Mustafa, M. and Selassie, H. 2006. The Impact of Quality of Life and Business Variables on Employment: A Cross-County Analysis of South Carolina” The Academy of Economics and Finance, Papers and Proceedings, Pages 226-230.

**SOURCE OF FEDERAL FUNDS:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program

**SCOPE OF THE IMPACT:** State

**Key Theme-4-H Youth Development (Personal Development, Leadership and Citizenship)**

a. Description

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. Without the skills and confidence to make appropriate decisions, youth often make poor choices about important issues. The 4-H Program provides a variety of programs, events and activities designed to improve the ability of youth to develop their personal talents and leadership skills. In addition, the program provides opportunities for youth to serve as partners in planning, implementing and evaluating the overall 4-H Youth Development Program. They are intended to be partners in the program, not merely recipients.

b. Impact

There were 640 days planned in this project with 1,017 days reported. There were 502 activities and programs conducted in this project with 6,991 persons completing these non-formal education programs, 6,245 of these youth reported an increase in knowledge with 1,158 youth reported adopting or increasing uses of practices, and 3,044 planned to adopt practices. A total of 2,496 volunteer hours were also reported.

Four 4-H members attended the National 4-H Conference in Washington, DC to provide input and vision for the 4-H program of the future. The State 4-H Council visited with the governor and was introduced from the South Carolina Senate and House of Representatives. Eleven 4-H members attended National 4-H Congress in Atlanta, GA.

The 4-H program also teaches about the responsibilities of American citizenship. A ceremony is held during State 4-H Congress recognizing youth who have reached their eighteenth birthday and are eligible to vote. State service projects were conducted to benefit Habitat for Humanity. Local club and county 4-H programs offered numerous opportunities to help others.

Six Character Critter lessons were presented in a series of six weeks to the 5-year old kindergarteners at Buffalo Elementary School and Foster Park Elementary School. The lessons taught included responsibility, caring, respect, fairness, trustworthiness, and being a good citizen.

Club participation in community service projects-collected, donated and delivered supplies to the Manna House and Red Cross. Participants learned how to care for others and the need of others for common supplies.

4-H Youth participated in a manners workshop. The students learned the importance of having good manners, morals and values.

The Leadership Sumter for Youth retreat was held during the Fall. Twenty-five youth participated in the program. The youth participated in a team building workshop, including the low and high ropes course. The activities gave the youth a chance to bond and discover some of their strengths and weaknesses. The youth enjoyed the retreat and they are looking forward the monthly meetings that they will be involved in the next few months. The team building exercises gave the youth an opportunity to enhance their leadership and communication skills. They learned the benefits of working as a team and how each one of them could contribute something to the group that would be helpful to the success of the team.

Ninth grade students learned about how to prepare for a job interview, the importance of good hygiene, kindness and first impressions. The youth conducted interviews to learn first hand about interviews and how they are use to select candidates for jobs. The youth also learned about General etiquette. They took an Etiquette IQ test to determine how well they conduct themselves in everyday situations.

- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact - State

### **Key Theme – 4-H Youth Development (Plants & Animals)**

- a. Description  
Learning about plants and animals has long been the hallmark of the 4-H program. When 4-H began more than 100 years ago, youth from an agrarian society needed skills taught by 4-H to nurture their family's livelihood. Although far fewer youth, including 4-H members, now live on farms or require knowledge of crops and animal husbandry practices to survive, learning about living things is just as critical today because society

as a whole has lost touch with agriculture and food production. Of course, teaching youth about plants and animals is much more than teaching them to appreciate life. Lifelong hobbies and careers develop over the course of a 4-H plant/animal experience. The value of discovering a hobby that is truly cherished and brings lifelong satisfaction coupled with the development of skills and conservation practices makes this project especially significant.

b. Impact -

There were 976 days planned and 1,573 reported for this project area. A total of 12,203 white males, 13,027 white females, 3,515 black males, 3,531 black females, 343 other males, 369 other females and including 770 limited resource youth were contacted through efforts made in this project area. A total of 1,700 hours of volunteer service were contributed in this project area. There were 688 activities and programs conducted with 18,672 persons completing these non-formal education programs. Of those persons completing the programs 16,643 youth reported increased knowledge while 3,486 youth reported adopting or increasing uses of practices. An additional 6,030 youth completing programs in plant/animal science indicated they plan to adopt recommended practices.

Embryology - Incubators were set up at 5 different schools and educational programs were presented to students according to grade levels. Students learned to name different parts of an egg, identify the germinal disc, how many days for incubation, other information was presented according to grade level. Fertile eggs were donated by poultry farmers who had layers for Gold Kist. Bowman FFA students will use chicks from their project to raise as a poultry project.

Junior master gardener program was conducted with South Sumter 4H Wizards. We did permeability and retention activities with different soil types, studied earthworms and their impact on soils. We got children to touch earthworms. Had dill plants with caterpillar larva on them - children examined insects and discussed metamorphosis. Children shucked 200 ears of corn for the corn and tomato party - examined corn ear worms and discussed their role in nature and impact on man.

Youth in the gardening program learned how seeds are germinated, seeds that are eatable, soil moisture and how to plant seeds. The youth 75 /percent planned to plant a home garden(container) and plan purchase seeds to eat such as sunflower, etc. The entire school body of approximately 600 students participated in an Arbor Day tree planting and celebration sponsored by 4-H after school program. There are approximately 65 students in the after school program who will be studying and participating in the Junior Master gardening curriculum through the end of the school year. As a service learning project, the after school group planted pansies and flowering kale at a nearby elderly residential housing unit. They will continue to interact with the residents throughout the year, with gardening projects, as well as playing games and reading.

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact - State

**Key Theme – 4-H Youth Development (Natural Resources & Shooting Sports)**

a. Description

Although our society expresses a desire for open space and abundant natural resources, citizens often lack a working knowledge of natural resources and an understanding of their role in environmental stewardship. Many have no contact with the natural environment or little experience in outdoor recreation activities. The 4-H program 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. 4-H also develops life skills through outdoor education and recreation activities.

b. Impact

There were 653 days planned and 896 reported in this project area. A total of 4,849 white males, 3,790 white females, 1,533 black males, 1,399 black females, 174 other males, 166 other females and including 511 limited resource youth were contacted through efforts made in this project area. A total of 1,777 volunteer hours were contributed to this project. There were 251 activities and programs conducted with 8,257 completing non-formal education programs. Of those youth who completed the programs, 7,557 reported increase in knowledge and 732 adopting or increasing uses of practices. An additional 3,389 individuals plan to adopt recommended practices. In addition there were 1,818 youth reported in county natural resources programs, 1,274 who participated in shooting sports clubs, and 71 youth trained in hunter safety.

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact -- State

**Key Theme – 4-H Youth Development (Science, Safety & Technology)**

a. Description

Youth live in a world where technology rapidly changes and becomes obsolete. Acquiring a basic understanding of electrical and mechanical science is vital to understanding the world around them. Having computer science skills has become a necessity for productive life in the world of work.

Safe behavior is essential for youth and it must be taught and reinforced. Vehicle safety is of grave concern during the adolescent years. The South Carolina 4-H Energy Challenge, with support from SCANA Corporation, Duke Power Company, Inc., and Carolina Power and Light Company, continues to provide an opportunity for South Carolina students to learn about the world of energy. In addition, 4-H youth are actively engaged in electric, computer science, and safety programs.



In addition, strong emphasis is needed on developing an awareness in youth of the relationship between sound nutrition and physical exercise. Healthy practices related to sound nutrition and physical exercise are often misunderstood or simply not practiced by even those youth who participate in organized athletic activities. In nutrition and fitness, the 4-H program offers instruction in workshops, seminars, school enrichment and camping.

b. Impact

There were 407 days planned and 488 days reported in this project area. A total of 2,088 white males, 2,424 white females, 1,335 black males, 1,412 black females, 240 other males, 209 other females and including 835 limited resource youth were contacted through efforts made in this project area. There were 254 activities and programs conducted with 5,518 youth who completed these non-formal education programs. Of these youth who completed the programs 4,754 youth reported increased knowledge and 347 youth reported adopting or increasing uses of practices. There were also 2,167 youth who completed programs and plan to adopt the recommended practices. A total of 708 volunteers hours were reported in this project area.

4-H Fire Safety Ceremony held. The Fire Chief, Firemen, Parents, Teachers and Students attended the event. The students were awarded for the outstanding performance in the 4-H Fire Safety Contests (Creative Writing and Poster Art). The parents were very impressed with the program. Many commented that they wished there were programs like this one when they were young. The teachers are looking forward to conducting this program again next year in their classrooms.

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact - State

**Key Theme – 4-H Youth Development (Food & Nutrition)**

a. Description

Youth are faced each day with making choices, some of which could impact their lives forever. They face the challenge of balancing their desire and ability to make healthy decisions with the desire to feel part of a group. Without the skills and confidence to make appropriate decisions, youth often make poor choices about important issues. The 4-H Program provides a variety of programs, events and activities designed to increase the ability of youth to make wise decisions. In addition, the program provides opportunities for youth to serve as partners in planning, implementing and evaluating the overall program. They are seen as partners in the program, not as recipients of the program.

b. Impacts

There were 458 programs conducted in this project, with 10,870 youth completing these non-formal educational programs. Of those youth completing the programs, 9,913 reported an increase in knowledge.

Youth gained knowledge about when to purchase seasonal fruits and vegetables, the importance of having fruits and vegetables in their daily diets, preparing healthy snacks while at home and away at school, how to eat in portion size and to include food from Food Guide Pyramid as much as possible. At the end of the sessions 100 youth plan to adopt ways and change their habits of eating.

Children in The Hunley Park Elementary After-school Program are learning about the importance of fruits and vegetables in their diets. Also they learned how to prepare healthy snacks for themselves and their younger siblings. 75 percent of the youth who tasted the fruits and vegetables stated that they would encourage their parents to prepare the recipes for them at home.

Food safety classes were presented in the Darlington County School District and at the Darlington County Library. Students were very surprised when they learned that they must wash their hands 20 seconds before they are clean. They learned about the different types of germs they can catch if they are not careful about washing their hands (salmonella, staphylococcus, etc.) and keeping everything that touches food clean. The youth also learned about the importance of keeping raw meats separated from the cooked meats etc.

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact - State

**Key Theme – 4-H Youth Development (Communications & Expressive Arts)**

a. Description

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. Extension 4-H programs provide opportunities for youth to become proficient in many communications modes. The opportunities exist through different delivery modes in order to reach a diverse audience of young South Carolina citizens. Competitive events which are designed to strengthen the skills of the 4-H participants include: method demonstrations in 4-H project areas; public speaking contests; and a business demonstration contest.

b. Impact -

There were 64 days planned in this project with 113 days reported. A total of 129 white males, 417 white females, 97 black males, 188 black females, 12 other females and 141

limited resource youth were contacted through this project area. There were a total of 55 activities and programs conducted in this project area with 654 youth completing these programs. Of those youth participating, 582 reported that they increased their knowledge. Over 321 reported that they plan to adopt a practice that they learned.

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact – State

### **Key Theme – 4-H Youth Development (Youth County Camping)**

a. Description

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.

b. Impact

There were 181 days planned and 271 days reported for this project area. A total of 1,252 white males, 1,557 white females, 871 black males, 1,061 black females, 72 other males, and 56 other females were contacted through this program area. There were 355 limited resource youth involved in this project. There were 133 activities and programs conducted with 2,896 completing education programs. Of those youth who completed the programs 2,590 youth reported increase in knowledge and 371 youth reported adopting or increasing uses of practices. There were also 399 who plan to adopt recommended practices.

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact – State

### **Key Theme – 4-H Youth Development (Volunteerism)**

a. Description

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.

b. Impact

There were 952 days planned and 1,335 days reported for this project area. A total of 2,435 white males, 4,633 white females, 997 black males, 1,965 black females, 139 other males, and 217 other females were contacted through this program area. 82 were a limited resource audience. There were 362 activities and programs conducted with 2,549 completing education programs. Of those who completed the programs 2,035 reported increase in knowledge and 251 reported adopting or increasing uses of practices. There were also 1,182 who plan to adopt recommended practices.

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact – State

**Key Theme: Youth Development -Youth at Risk Programs**

a. Description

Adventure and experiential learning are core components of programs in this area. The goal of these programs is to provide youth who have exhibited high-risk behaviors a chance for growth and personal development so that they can succeed back in their communities and classroom. Through the use of alternative educational program, students can strengthen their academic skills, build self-esteem and life skills while increasing leadership skills in an organized camping environment. Programs conducted through this effort include non-residential alternative school programs as well as overnight residential camping programs.

b. Impact

There were 724 days reported for this project area and a total of 44,789 contacts made. A total of 178 educational programs were conducted reaching 6,362 youth through overnight programs designed for at-risk youth.

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact - State

**Key Theme: Youth Development (Family and Adult Outreach Programs)**

a. Description

The magic of the camp experience can reach adults as well as youth. New surroundings, new challenges and supportive environments strengthen families and encourage new experiences and fresh perspectives. Programs conducted through this effort include Elderhostel programs that bring a wide variety of educational and recreational retreat opportunities to those over the age of 55. Subject areas for these programs include Ornithology, history of the Santee-Cooper lakes, canoe trips, the Internet, the Revolutionary and Civil Wars, and much more. In addition, many rowing teams from the northeast and mid-west attend training programs to prepare for their upcoming season. Also, many groups, such as churches, businesses, non-profit organizations, government agencies, and schools, participate in weekend or summer retreats that are designed for their particular needs.

b. Impact

There were 1,261 days reported for this project area. A total of 3,282 contacts were made through this program area. A total of 149 persons attended Elderhostel programs.

c. Source of Federal Funds - Smith Lever 3b&c

- d. Scope of Impact - State

**Key Theme: Youth Development -Special Needs Programs**

- a. Description

Physical limitations should not limit the opportunities for individuals to learn and grow. Camp programs are specifically designed to encourage individuals to reach beyond their perceived boundaries and grow through their experiences. Programs in this area include week-long residential camps for children who have diabetes or have been diagnosed with cancer, as well as programs for youth and adults with other disabilities and special needs.

- b. Impact

There were 100 days reported for this project area. A total of 519 contacts were made through this program area. A total of 123 people with special needs participating in overnight camping programs.

- c. Source of Federal Funds - Smith Lever 3b&c

- d. Scope of Impact - State

**Key Theme: Youth Development -Youth Leadership Programs**

- a. Description

Using experiential education and natural settings, we have created innovative programs that assist in the healthy development of young people. Through the use of adventure programs and hands-on activities, students learn to communicate effectively, solve problems and work with others. Programs in this area range from two-week summer camp programs to day-long planetarium presentations. In addition to traditional camp activities, campers are also taught food and nutrition, aerospace technology, marine science and wildlife ecology.

- b. Impact

There were 1,892 days reported for this project area. A total of 34,649 contacts were made through this program area. Over 4,497 youth participating in in-school programs conducted by staff. Over 4,535 youth participated in overnight programs with a specific academic or development focus conducted by staff.

- c. Source of Federal Funds - Smith Lever 3b&c

- d. Scope of Impact - State

## **Key Theme: Families**

### **Key Theme - Families (Building Family Strengths)**

#### **a. Description**

Society has undergone dramatic social, demographic and economic changes that have deeply affected individuals and families in this country. Extension continues to focus on strengthening individuals and families while addressing current issues facing children, youth and families across the lifecycle. The impact of these programs has been reduced because of funding and program redirection. However, creating caring families and communities through collaborative efforts is a MUST if we are to meet the challenges today and beyond. This approach demands a team approach to programming that focuses on the needs of the total family. Strong families provide children with a sense of belonging and identity and create hope for the future. Extension programming in Building Family Strengths provides opportunities to strengthen families and address issues facing children, youth and families. The program has a developmentally appropriate curriculum designed to strengthen families. The current emphasis had been shifted to programming to youth and the South Carolina Family and Community Leaders organization. This Building Family Strengths program has been the recognized as a “model” for team programming by the NAE4-HA and Epsilon Sigma Phi, receiving state and national recognition. In addition, Building Family Strengths has been identified by the CSREES Family Development/Resource Management base program team as a program of excellence.

Extension programming in Building Family Strengths provides opportunities to strengthen families and address issues facing children, youth and families. This Building Family Strengths program has been the basis for the program of work effort for SC Cooperative Extension. Partners involved in utilizing the materials statewide are Department of Social Services (Youth Services Program) Clemson University College of Health Education and Human Development, South Carolina State University, Prison System, Faith-based institutions and secondary schools in South Carolina. In addition, Utilizing the train-the-trainer model, this holistic approach to family & youth programming has been successful in a variety of settings that include traditional classrooms, state youth services, juvenile justice, foster parents, county extension Family and Consumer Sciences and 4-H agents, student teacher training, and non-profit organizations. Building Family Strengths has been used successfully with the 4-H Operation Military Kids educational efforts.

#### **b. Impact**

Examples include providing teacher training to Family and Consumer Science teachers, mental health collaborations, after school youth programs, drug deterrence programs, county 4-H Day Camps, Juvenile Justice 4-H Clubs, Children’s Garden Projects, and Farm City programs . Throughout the year, many train-the-trainer workshops were conducted by state and county Extension faculty. The current focus of the Building Family Strengths program is to integrate curriculum onto the 4-H youth development

program. To this end, professionals representing Extension, secondary schools, Headstart, daycare personnel, higher education, human service agencies, law enforcement, and clergy have been trained throughout the state. In addition 13 military installations in the Southeast have adopted the BFS curriculum for use in the afterschool programs and over 500 professionals will receive the training. The SC 4-H Operation Military Kids project is using the Building Family Strengths model to address family needs of deploying service men and women. The Taking Charge in Challenging Times materials are proving effective for use with many unemployed workers due to manufacturing plant closings in the state due to out sourcing of labor.

The trainings were designed for diverse work settings and provided the basis for partnerships in the project. It also increases Extension’s visibility and ability to program in many different settings. In addition, the curriculum design is applicable to audiences reached by many organizations. The delivery of the Building Family Strengths curriculum throughout the state has demonstrated Extension’s ability to offer train-the-trainer trainings (for a fee) to other professionals.

#### Building Family Strengths for Later Life

	1.	Number of educational programs and activities conducted.	34
	2.	Number of people completing educational programs.	272
	3.	Number of people completing educational programs – first time	258
	4.	Number of people reporting increased knowledge.	207
	5.	Number of people who plan to adopt practices.	86
	6.	Number of people adopting practices.	73
7.	7.	Number reached through mass media.	25,000
	8.	Number of people participating in Conflict Resolution/Anger Management programs.	26
	9.	Number of people participating in Taking Charge in Challenging Times programs.	4

#### Building Family Strengths – A Youth Development Approach

	1.	Number of educational programs and activities conducted.	66
	2.	Number of people completing educational programs.	1,353
	3.	Number of people completing educational programs – first time	742
	4.	Number of people reporting increased knowledge.	1,279
	4.	Number of people who plan to adopt practices.	637
	5.	Number of people adopting practices.	340
	6.	Number of people receiving information through “non-program” contacts such as telephone, office, and farm visits.	265
	7.	Number reached through mass media.	20,000
	8.	Number of volunteer hours.	60
	9.	Number of people participating in Conflict Resolution/Anger Management programs.	261
	10.	Number of professionals participating in Train the Trainer	18

In February 2001, 2004 and 2006, National Strengthening Families and Youth Conferences were sponsored with over an average of 160 participants across the US for professionals working with youth, communities, and families. Throughout the year, many train-the-trainer workshops were conducted by state and county Extension faculty.

- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact - State

**Key Theme – Families – (Financial Management)**

a. Description

Many South Carolinians are in great danger of not being financially stable and secure throughout their lifetimes. Because most people did not receive formal financial education in their youth, they need lifelong learning opportunities to help them improve their financial management skills. Increasing financial literacy throughout the life cycle is essential to avoid threats to financial security.

Programs in this area are designed to increase the number of South Carolinians who are financially literate and empowered with the knowledge, attitudes, skills, and confidence to practice effective and successful financial management strategies that insure financial security and stability across the life cycle. Education programs encourage families to adopt financial practices which will increase financial security and stability and help families cope with financial impacts of periods of reduced income due to plant downsizing and military base closings, as well as from divorce, widowhood, and natural disasters.

Educational programs for youth encourage them to 1) set and achieve financial goals through regular savings, 2) help them understand and adopt basic financial management practices, 3) make wise consumer decisions in the marketplace, and 4) provide entrepreneurship concepts in preparation for real world experiences. Programs are conducted by county agents and specialists.

b. Impact

Impact data for each of the projects are as follows:

*Project 122 - Financial Security in Later Life* - There were 65 days planned and 123 days reported in this project area with a total of 368 contacts and 153 people participating in 9 educational programs and activities.

- |  |     |
|--|-----|
| 1. Number of educational programs and activities conducted.  | 9   |
| 2. Number of people completing educational programs.   | 153 |
| 3. Number of people completing educational programs for the first time in the current CUMIS FY from #2 | 100 |
| 4. Number of people reporting increased knowledge from the number completing educational programs.     | 116 |
| 5. Number of people who plan to adopt practices from the number of people who increased                |     |



knowledge.	21
6. Number of people receiving information through "non-program" contacts such as telephone, office, and farm visits.	20
7. Number of people who develop a plan for accumulating, protecting, and distributing/transferring assets.	21

**Key Theme – Families (FCL Volunteer Management and Leadership Development)**

a. The purpose of Project 125 FCL Volunteer Management and Leadership Development is to implement an effective volunteer management system for FCL boards, committees, and county organizations and to establish, revitalize and/or improve the cooperative relationship with FCL to expand the scope of its membership and programming efforts.

b. Impact

During the 2005-06 fiscal year, 332 days were planned in this project area 489.5 days were reported with 6,185 total contacts including 24 limited resource contacts.

1. Number of educational programs and activities conducted.	213
2. Number of people completing educational programs.	2,874
3. Number of people completing educational programs for the first time in the current CUMIS FY from #2	792
4. Number of people reporting increased knowledge from the number completing educational programs.	2,383
5. Number of people who plan to adopt practices from the number of people who increased knowledge.	894
6. Number of people adopting practices from the number of people who increased knowledge.	135
7. Number of people receiving information through "non-program" contacts such as telephone, office, and farm visits.	1,173
8. Number of FCL volunteers conducting programs with other groups.	453
9. Number of volunteer hours contributed to FCL Volunteer Management and Leadership Development.	7,233
10. Number of participants reached by FCL volunteers.	5,230
11. Dollar amount of program support including time and resources.	\$94,542

c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact – State

**Key Theme: Provide Family Development and Resource Management Educational Programs to Improve the Well-Being of the Family Structure (1890)**

- a. Family financial programs are major concerns across the United States, because poor credit history is preventing people from making major purchases like homes, cars and real estate. Many families are living from paycheck to paycheck and the number of personal bankruptcies has continued to rise. Productivity in the workplace is affected when workers experience financial stress. Effectively managing money and finances is a learned skill. Therefore, young adults need more preparation in personal finance basics, such as saving and investing, use of credit and risk management. The 1890 Extension Program at South Carolina State University conducted a six week financial planning workshop at Calhoun County High School in St. Matthews, SC; Westside Community Center in Anderson, SC; Woodland High School in Dorchester, SC; Bethune Bowman in Bowman, SC; Lake Marion High School, Santee, SC; and North High School North, SC.

The program is designed to alert, inform and educate high school students in the fundamental concepts of financial planning. With the program, young people can acquire important, practice personal finance knowledge that will positively impact virtually every area of their lives, now and in the future. Sound money management instructs them to budget for a household, implement a savings and investment plan, purchase a home and send themselves or their children to college.

- b. Impacts: Students were given a pre-test to determine their personal knowledge of financial planning. During the six-week period, the students were taught lessons concerning: What is financial planning? --- What it is and What it can do for them, setting goals, making decisions; Career – Work and Money: how to choose a career , understanding paycheck deductions, what an employer looks for in an employee; Budgeting – pay yourself first, record keeping, check writing, cash management; Savings and investment – key investment principles, savings and investment choices; Credit – buy now, pay later, credit costs and benefits, credit cards, installment loans, credit reports, bankruptcy; and Risk Management – insurance basics, shopping for policies, health, auto, liability, life and disability insurance.

The audience included 724 students in six high school financial management workshops. Evaluations indicated that 579 students increased their knowledge and 724 students said they planned to adopt sound money management practices.

- c. Source of Federal Funds: Smith-Lever Act

- d. Scope of Impact: State

- a. An investment in young people’s knowledge and understanding of effective leadership is important; that is why leadership is a priority within the 4-H Youth Development Program. By assisting with the development of leadership skills in today’s youth, 1890 Extension improved the ability of youth to face challenges of the

future. The program consisted of experiences and activities designed to promote life skill practices. The 1890 Extension Program conducted the programs in Orangeburg, Hampton, Williamsburg and Marlboro Clusters.

b. Impact: The basic leadership skills taught youth self-esteem, leadership, communication and conflict resolution. The 1890 Extension 4-H Youth Development Program reached 408 participants. Evaluations indicated that 375 of the participants increased their knowledge in leadership skills.

c. Source of Federal Funds: Smith-Lever Act

d. Scope of Impact: State

a. During adolescence, youth are challenged to remain self-confident and content. Happiness comes and goes as the mood swings of puberty prevail. It is critical that youth begin to clarify their values and make decisions that will enable them to be content and happy during the exciting and challenging time in their life. Middle School students are also at the stage where self-esteem becomes extremely volatile and more tied to forces outside the home such as peer approval and personal accomplishment in sports, academics and other activities. Building self-esteem, communication skills, and values is an ongoing process. An individual that feels good about himself or herself can face the challenges of life more effectively. The program takes a holistic approach by engaging parents and children in discussions.

b. Impact: Participants at Edisto Elementary School, St. Mark United Methodist Church, Project Life: Positeen, Connie Maxwell, the Orangeburg, Calhoun, Allendale, and Bamberg Community Action Agency, the Orangeburg Boys and Girls Club, Lake Marion High School, Star Center for Learning, Edisto Elementary School, Mount Tabor Baptist Church in Clio, Sheridan Elementary School and Mellichamp Elementary School were lead in group discussions about communication, resiliency and self-esteem. A total of 399 students participated in 60 workshops. Three hundred and sixteen participants stated that they increased their knowledge. Two hundred and seventy-seven participants said they planned to adopt a recommended practice.

c. Source of Federal Funds: Smith-Lever

d. Scope of Impact: State

a. In rural South Carolina communities, youth have little to do during the summer months because of lack of educational and recreation activities. In an effort to address the concerns, youth were engaged in a one to six-week summer enrichment program that reinforced school performance activities and enhanced life skills. The programs were offered in Allendale, Clarendon, Colleton, Dillon, Marlboro, and Marion counties. Students participated in individual and group assignments.

- b. Impact: Students were provided opportunities to participate in team building, communication and decision making activities. The audience included 667 participants in summer enrichment programs. Surveys showed that 506 participants increased their knowledge and 161 participants remained the same. The final results indicated that team building, communication, and decision making activities were beneficial to all that participated.
  - c. Source of Federal Funds: Smith-Lever Act
  - d. Scope of Impact: State
- 
- a. The After School Program was offered in Anderson, Williamsburg, Clarendon, Marlboro, Dillon, Hampton and Orangeburg counties. Topics included: reading, writing and math activities that were integrated through science and social studies.
  - b. Impact: The program reached 307 participants. Surveys showed that approximately 273 students participating in the program have showed vast improvement in school performance.
  - c. Source of Federal Funds: Smith-Lever Act
  - d. Scope of Impact: State

**Key Theme: Enhance Parenting Skills, Managing Resources, Caring for Children and Dependent Elderly Family Members Through Assessment Skills (1890)**

- a. The goal of Child Development training is to provide leadership and services to child care providers in the development and implementation of quality child care training. The training provides teachers with skills in implementing developmentally appropriate techniques and activities to preschool children, so children will enter school ready for success.  
  
Child Development training was provided to child care providers in Allendale, Florence, Hampton, Orangeburg and Calhoun counties. The trainings provided meaningful instructional activities and learning experiences, which generated an atmosphere of learning and discussion. The training hours ranged from 1.5 hours to 5.0 hours each.
- b. Impact: During the FY 2005-2006, 1890 Extension reached 530 child care providers. The participants represented 38 child care centers in Allendale, Florence, Hampton, Orangeburg and Calhoun counties. The 1890 Extension Program offered training at no cost to the child care providers. 1890 Extension provided approximately 50 hours

- of training. The average cost was \$25 per person and per class, thereby, saving the centers \$13,250.00. Extension takes the child care training to the people; therefore, reducing the travel cost for the child care providers.
- c. Source of Federal Funds: Smith-Lever
  - d. Scope of Impact: State
- 
- a. Sound money management will benefit consumers more, perhaps, than any other practical skills. The skills will enable consumers to budget for a household, implement a savings and investment plan, purchase a home and send their children to college. The family financial planning workshop was one-hour of training, utilizing the Skills for Taking Control of Your Future curriculum. The curriculum was designed to educate and help families prepare for their financial future. Participants developed household budgets and short term savings plan.
  - b. Impact: Participants at the Samaritan House Homeless Shelter learned about family financial planning. A total of 50 adults participated in ten workshops. Thirty-three participants stated that they increased their knowledge. Forty-six said they planned to adopt a recommended practice.
  - c. Source of Federal Funds: Smith-Lever
  - d. Scope of Impact: State

### **Success Story**

#### **Youth Council Community Clean-Up Day**

In 2005, the youth council of Marlboro County hosted a community clean up. During the clean-up, the council members selected elderly individuals from Marlboro County who were having trouble with finding someone to care for their yards. After selections were made, the council took on the task of getting the yard work done for the individuals. Two individuals were selected from each community. The work included cutting grass, trimming hedges and organizing items in the yard. The individuals who benefited from the work thanked the group for their hard work. They constantly stated that they did not know who would do the work or when the work would be done. The council members left the activity with a sense of a job well done. They stated that it felt good to help someone.

### **Success Story**

#### **It's a Matter of Etiquette**

The 1890 Extension Program in collaboration with the Williamsburg County School District and the Paxville Community Development Center are taking proactive steps towards bridging the educational, social and digital divides that exist between youth of limited resources and their

more advantaged contemporaries. We have aggressively implemented basic etiquette courses to all 101 students such as proper introductions, hand shaking, minding your manners, telephone etiquette (cell phone and home phones), bathroom etiquette and proper attire. Teachers and volunteers have all joined in on the intrepid endeavor. Initial results indicated that approximately 91% of the students participating in the program showed vast improvement in behavior and in social skills.

**Success Story**  
**YMCA Garden Club**

The YMCA Garden Program in Anderson, SC assisted students with learning ways to plant and manage a garden. Not only did the participants learn how to plant the garden, they also were given the fresh fruits and vegetables that were grown in the garden. After the program, the participants' teacher noticed that the children who participated in the garden program were more willing to try new healthy foods.

**Success Story**  
**Tech-Bridge Summer Camp**

During the Tech-Bridge Camp, Danielle was a good student who struggled with responsibilities. The responsibilities included completing her homework, getting up, being ready for school and showing excitement for school. After attending the Tech-Bridge Summer Camp, her parents explained they noticed a difference in Danielle's attitude towards her school work. They noticed Danielle wanted to come to the Tech-Bridge Camp everyday. She was excited about building the computer and was very eager to complete everyday, during the camp. Her Mom stated she was so excited that she increased her reading scores by two letter grades. Since the camp, Danielle's grades in school have continued to improve. Now that she has her own computer, she looks forward to doing her reports. She can type the reports as opposed to writing them.

**Success Story**  
**Westside Community Center**

Rashawn, a middle school student, attended the Westside Community Center's tennis camp everyday. On his first day of camp, he did not know how to hold the racket, hit the ball or any of the rules that apply to the game of tennis. He, also, did not like to play outside sports. After participating in the tennis camp, the teachers noticed how he enjoyed playing the sport and excelled to become one of the best tennis players in the camp. He said tennis is one of the sports he loves to play and if it had not been for the camp he would not have picked up a tennis racquet. He, also, stated that once he is in high school, he plans on trying out for the high school tennis team.

**Success Story**  
**Teens Against Violence – “7 Habits of Highly Effective Teenagers”**

The teenagers participating in the “7 Habits of Highly Effective Teenagers” workshop series were disturbed when they heard of all the crimes committed against teenagers. Seeking ways to

help the fight against teenage victims, the group took part in a conference held in a neighboring county. After several weeks of training, the teenagers served as captains at the conference and trained over 100 teenagers on ways to start and maintain a campaign against teenage victimization. The youth prepared for a conference in their own county and also started a county-wide campaign to teach all the students in their school district on the effects of bullying.

### **Success Story**

#### **Fun In The Community – Organized Recreation**

What started off as an attempt to attack obesity and diabetes among youth in Colleton County turned out to be the highlight of the summer. Youth ages 8-14 attended the 1890 Extension Organized Recreation daily. Small business owners, local politicians, community leaders, friends and families from throughout the county attended daily for fellowship and to cheer on their favorite team.

Program participants, sporting their sponsors' logo on their uniforms, would race up and down back and forth each day to support his/her team's winning effort. Despite the outcome of the games, at the end of day everyone was a winner. Participants went home excited about the opportunity to come back tomorrow, sponsors went home proud to have their company's logo paraded around on the chest of local youth. Parents and others went home with enough to talk about for the remainder of the summer. Volunteers went home with the self-assurance of making a difference in the lives of the youth by teaching them leadership skills, nutrition tips and proper physical activity mechanics.

Each day was an opportunity for the community to unite. The youth got their daily exercise in a constructive environment with caring adults. A day of "Fun In The Community" provided positive memories and experiences for all that were present.

### **Success Story**

#### **Montavia Berry, 4-H'er/Poultry Program**

Montavia Berry is 13-year old African American male who resides in Walterboro, South Carolina. Berry was first introduced to 4-H during his participation in an 1890 Summer Camp held the year of 2003. Montavia Berry is currently a seventh grader at Ruffin Middle School located in the Colleton County School District.

Berry enrolled in the Poultry Program March of 2006. After program orientation, instructions from the SCSU 4-H agent and referring to the 4-H Poultry guidelines; Montavia began preparing to receive his pullets. He was responsible for preparing a pen, feeding station and brooder for his pullets. The extension agent provided guidelines and diagrams for the 4-H'er to follow.

All Poultry program participants were administered their pullets on April 28, 2006. All responsibilities related to feeding, protecting and caring for the pullets were given to the 4-H'er. The extension agent visited the participants' farms to answer questions, vaccinate the pullets and test the pullets' blood.

The program requirements included the participants caring for the chickens for 26 weeks. The participants had to report back with his/her best five chickens to the Show & Sale Competition. The 4-H Poultry Program Show & Sale Competition is held annually in Hampton, South Carolina. Local farmers as well as citizens in the market for high quality poultry show up each year to purchase 4-H chickens.

Montavia was joined by 15 other 4-H'ers in the 2006 Poultry Program. Out of the total 16 participants, Berry was one of few that reported with chickens that had already begun to lay eggs. Despite being a first year Poultry Program participant, Montavia placed second and was named the 2006 Poultry Program Show & Sale Grand Reserve Champion.

In addition to leaving with a blue ribbon and the Grand Reserve trophy, Berry was able to sell some of his chickens to a local consumer. Montavia still has more than half of his pullets from the Poultry Program. With the chickens, he is able to provide eggs for his family as well as neighbors in his community. Montavia Berry will be eligible for twice the amount of pullets in the upcoming Poultry Project.

## **Impact Statement**

### **High School Financial Planning**

People are saving at the lowest level since the Great Depression, and that could be a problem for the millions of baby boomers getting ready to retire. In fact, the Commerce Department reports that the nation's personal savings rate for all of 2006 was negative 1 percent, the worst showing in 73 years. The young and the poor have the most trouble saving. Forty two percent of the people 18 to 49 said they were likely to spend more than they could afford. Among those with household incomes below \$30,000, 45 percent said the same. There was a 1 percent negative savings rate in 2006 followed by a 0.4 percent negative rate in 2005. There have been only four years in history that the savings rate has fallen into negative territory. The other two years were 1932 and 1933, during the Great Depression. During the Depression, when as many as one in four people were out of work, households were exhausting savings in order to pay the rent and buy food.

The 1890 Extension Program at South Carolina State University conducted a six week financial planning workshop at Calhoun County High School in St. Matthews, SC; Woodland High School in Dorchester; SC, Bethune-Bowman in Bowman; SC and North High School in North, SC.

The program was designed to alert, inform and educate high school students in the fundamental concepts of financial planning. With the program, young people could acquire important, practical personal finance knowledge that would positively impact virtually every area of their lives, now and in the future. Sound money management enabled them to budget for a household, implement a savings and investment plan, even purchase a home and send themselves or their children to college.

Effectively managing money and finances is a learned skill. The post test given at the end of the



period illustrated that point. Calhoun County High School increased 70% while North and Woodland increased 59% and 55% respectively. The schools showed an average increase of 61%, while 10% remained the same and 7% of the participants' scores decreased. The participants included four hundred eighty-six twelfth graders.

**Key Theme: Youth Development (1890)**

**TITLE: A Demonstration of the Etymological Word-Learning System**  
**Project #: SCX-206-02-03 Project Duration: September 2006**

Under the Sankofa Language Aptitude Development System (SLAD), the principles of Sankofa punctuate language development activities setting, the stage for recurring epiphanies in the mind of each student. The epiphanies constitute the sudden awareness of the relationship between a host of words bound by their etymologies. The fundamental element in the Sankofa Language Aptitude Development System sets it apart from all other language learning systems and stimulates future learning.

The Sankofa process is further enhanced by instructional activities requiring the use of the dictionary and contextual application of new words and phrases in appropriately re-structured sentences and paragraphs. The sequence and pattern of activities under the learning modules are structured to achieve and sustain high levels of motivation to learn among students. Each activity is designed to reinforce the notion that learning words can be easy and enjoyable.

**IMPACT:** Teachers have shown a measurable increase in composition skills by using the Right Word Finder. The students have shown exceptional interest in reading and writing.

**PERSONNEL:** No students employed during the time.

**COLLABORATIONS:** Whittaker Elementary School

**SUCCESS STORIES:** The publication of "The Right Word Finder," which is a cleverly designed tool for assisting writers of all ages. It specializes in finding adjectives, nouns, verbs, and adverbs that are more expressively precise and colorful than those most typically used.

**PUBLICATIONS/PRESENTATIONS:**

Small, Donald, (2006). "The Right Word Finder". Bloomington, IN, Authorhouse.

**SOURCE OF FEDERAL FUNDS:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program

**SCOPE OF THE IMPACT:** State

**Key Theme: Youth Development (1890)**

**TITLE: An Outcome Study Relative to Adolescent Violence and Acting- Out Following A College Student Mentoring Experience in Fifth And Sixth Grades, Phase II**

**Project #: SCX-318-02-03 Project Duration: October 2003 – September 2007**

The mentoring project was designed to impact essentially high-risk students through the mentoring relationship and to measure the effects of intervention against students in a control group. The current Phase II is an extension of a 5 year longitudinal study (Phase I). In Phase I, the object was to measure identifiers that predicated success in academics, discipline, truancy and prevention of drop-out, pregnancy or violent behavior based on mentored vs. non-mentored children. The purpose of Phase II is to ascertain success of mentoring experiences reflected by academic success, e.g., graduation and/or college entry; career choices, emotional development, self-esteem, social values and hope that precede successful adaptation to adulthood.

**Impact:**

A total of 63 high school/post high school students are currently in the Phase II study. Forty students (mentored and non-mentored) graduated from high school, 7 were in the 12<sup>th</sup> grade, two were in a GED program and 14 were dropped from the program. Students who graduated, those still in school and those who had dropped out of school participated in an assessment regimen designed to measure emotional development, self-concept and hope. Assessments continued until August, 2006 producing data that are currently being analyzed to determine levels of development and to ascertain the difference between students who graduated and the drop-outs. By May, 2006, 45 had graduated, 3 were continuing in adult education or GED pursuit and 15 were dropouts.

In addition to Phase I and II, an exploratory study to determine student attitudes and beliefs relative to violence and acting-out commenced in August 2006, using the Youth Response Survey (YRS), a researcher developed instrument. Testing of the YRS was carried out in the project's subjects and on students at randomly selected schools for determining validity and reliability. The YRS was administered to 4<sup>th</sup>, 6<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup> and 12<sup>th</sup> graders in Orangeburg Consolidated School District 5. Neighborhood characteristics were studied and evaluated to determine the impact of social change on neighborhoods and on citizens between 1964 and 2006. Project outcomes further stimulated awareness of need for a Center where education, health and welfare of limited resource children and youth can be addressed.

Benefits accrued as a result of the study to date are:

1. Scientific research experience in Orangeburg County, South Carolina
2. Consolidated School Districts 4 and 5 and the Calhoun County School District.
3. Positive effects in below average mentored children.
4. Career assessment, guidance and assistance to students who have dropped out of school.
5. Opportunity to use evidence based data to influence schools.
6. One graduate student and 2 undergraduate students were hired to aid in tracking and assessing project graduates/dropouts who are young adults and many on their own.

**Publications/Presentations:**

“A Longitudinal Study to Determine the Effects of Mentoring On Middle-School Youngsters Using Nursing and Other College Students” was submitted and accepted for publication in late 2007 in the *Journal of Child & Adolescent Psychiatric Nursing. (Results of Phase I)*

National Dropout Prevention Conference, Santa Clara, California, October 15-20, 2005. Presented a paper on Phase I results.

A presentation was conducted on November 17, 2005 to the Orangeburg Consolidated School District 5 principals and administrators: “Outcomes of a Longitudinal Mentoring Project with Middle-School Youngsters”.

A presentation of the 1890 Research Project results of Phase I was conducted on November 5, 2005 for the researchers of SCSU/1890 Research.

A paper was submitted for publication to the National Dropout Prevention, *The Journal of At-Risk Issues*, “Development of Testing the Youth Response Survey”.

A paper was prepared and a presentation conducted at the 14<sup>th</sup> Biennial ARD Research Symposium, 2006 in Atlanta, GA, April 4, 2006, “Outcomes of a Longitudinal Mentoring Project with Middle-School Youngsters”.

**Students:** One graduate student, working on his Masters in Transportation, and two undergraduates have been involved in the project. One undergraduate is majoring in Education and the other in Sociology.

**Success Stories:**

- a. Data collection has been completed for 2005-2006 academic year and data entry has begun.
- b. A positive relationship with educational institutions and the community has been established.
- c. Contact with project dropouts has been maintained.
- d. Plans for a Transitional Center have been addressed with various university and community professionals. A coalition is currently promoting research aimed at development of the concept.
- e. A Transitional Model has been developed.

**Collaborations/Partnerships:**

- a. Faculty/Staff/Administration of area high schools collaborated with testing processes throughout the two phases of the study. Incentives were received.
- b. Administration/staff of Orangeburg Consolidated School Districts 4 and 5 participated in meetings and decision-making prior to both phases and received information when the results were presented publicly in district meetings.
- c. Calhoun County School District administrative personnel and faculty approved and assisted in the testing process..

- d. Orangeburg County Adult Education assisted with gaining access to students enrolled in their program.
- e. South Carolina State University's Program of Nursing was the university source of the research project and had on-going participation as faculty, student mentors and space allocation.
- f. SCSU/1890 Research & Extension provided support and direction for management of the projects.
- g. Mr. Tyrone Dash, Computerized Survey Design Specialist, served developing test design and analyses throughout the project beginning in year 3 of Phase I and continuing throughout Phase II.

**Source of Federal Funds:** United States Department of Agriculture, Evans-Allen Cooperative Agricultural Research

**Scope of the Impact:** State

**Key Theme: Youth Development (1890)**

**Title: The Effectiveness of Differentiated Action Research and Instructional Beliefs, Skills, and Reflection of Field-Based Practices by Pre-Service Teachers**  
**Project# SCX-206-03-05      Project Duration: May 2005 – May 2008**

Action Research is primarily practitioner-driven. It is a method for teachers to examine outcomes for students. The linking of the terms 'action' and 'research' high-lights the essential features of the method: trying out ideas in practice as a means of increasing knowledge about and/or improving curriculum, teaching, and learning. The primary focus of the project is to prepare pre-service and in-service teachers who can serve 3<sup>rd</sup> through 8<sup>th</sup> grade students achieving below grade levels, those who are hard-to-reach., those with limited resources and those with poor literacy skills through the RARR Model for Teachers (Reflective Action Research Routine Model).

**Scope of Impact:**

The action research project is currently working with four school districts: Orangeburg District 5, Aiken School District, Bamberg School District 2, and Calhoun County School District. Of the four school districts, six teachers are from Orangeburg District 5 and one teacher from each of the other school districts respectively. From Orangeburg District 5, there are four teachers from Howard Middle School and two teachers from Whittaker Elementary School. The teacher that is located in Aiken School District is employed at Langley-Bath Middle School; while the teacher from Bamberg School District 2 is employed at Denmark-Olar Middle School. There is also one teacher from the Calhoun County School District and he is employed at Guinyard Elementary School.

Working with 800 students has inspired the researcher and project to excel at a level of educational advancement in the field of action research. Teachers are faced with issues and/or

concerns in the classroom that must be addressed, if the schools are to survive. We have assisted the nine teachers with activities in the content areas of language arts, science, social studies and math. Activities were designed to promote critical thinking, problem solving skills, inductive and deductive reasoning skills as a basis for helping students to become better learners and achievers.

**Personnel:**

The project has employed a total of 42 pre-service teachers who have worked with the University's in-service teachers in five rural school districts. Currently, there are 20 pre-service teachers working with the nine in-service teachers and the 800 students.

**Publications/Presentations:**

- AACTE Conference in San Diego, California on January 28, 2006.
- Presented the action research project at the Middle School Conference held in Myrtle Beach, South Carolina from March 3-5, 2006.
- Presented at the Middle Level Teacher Education Symposium held at the College of Charleston, Charleston, SC, from May 17-19, 2006.
- Attended the ARD Conference in Atlanta, Georgia from April 1-5, 2006.

**Source of Federal Funds:** The research was funded by the US Department of Agriculture, Cooperative State Research Service, Evans-Allen Research Program

**Scope of the Impact:** State

## **B. STAKEHOLDER INPUT PROCESS**

Section 102(c) of the AREERA Act of 1998 requires that land grant institutions provide information related to stakeholder input. The Act specifies that information on 1) actions taken to seek stakeholder input that encourages their participation and 2) a statement of process used by institutions to identify individuals and groups who are stakeholders and to collect input from them.

At Clemson University, stakeholder input remains a key to successful extension programs. Clemson has a long history and tradition of seeking stakeholder input into the plan of work process. The process involved in seeking stakeholder input includes the following steps: 1) Identification of stakeholders--internal and external that should have input in the POW process, 2) Process used in seeking stakeholder input, 3) POW questions for stakeholders, and 4) Profile of external stakeholders.

**Identification of Stakeholders--Internal and External:**

**Internal:** Internal stakeholders include Extension administrators, program administrators,

County Extension directors, Extension agents, agent associations, specialists, faculty, department chairs, school directors, and faculty and administrators from Experiment Stations (Research).

**External:** Extension advisory boards, commodity groups, community leaders, human service providers, business/industry, and collaborators such as Farm Bureau, Chamber of Commerce, Farm Service Agencies, etc.

### **Process Used to Seek Stakeholder Input and Questions**

Nominal group technique (NGT) was used to garner stakeholder input to the POW process. NGT is a process where a group of individuals 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. These questions included: 1) What are the five most critical issues facing your communities in the next five years? 2) Is Extension addressing any of these issues? and 3) What partnerships do you think might be formed with Extension to address the issues or concerns? The responses to these questions were summarized by county, by cluster and by state as a whole. The initiatives and projects that were developed for the state plan of work are a result of this process which were later included in the strategic goals of Public Service and Agriculture (PSA) in South Carolina.

### **Profile of Stakeholders**

Of all the external stakeholders, Extension advisory boards play a significant role in the POW. Extension advisory board members constantly provide input to Cooperative Extension in South Carolina. A profile of advisory board members would help address the diversity issue. Of the 237 advisory board members who provided input, 48% were male, 52% female; 81% Caucasian, 15% African-American, and 4% other. Regarding age, 5% were less than 35 years of age, 46% between ages 36 and 55 years, and 49% more than 55 years. Eighty-four percent were married and living with a partner. Regarding education, 15% had completed high school, 18% some college, 35% were college graduates, while the remaining 32% held masters or professional degrees.

In 1890, **Stakeholder Input Process** efforts were concentrated on developing on-going assessment tools such as reporting stakeholder and clientele feedback through weekly reporting on activities conducted in workshops and forums within cluster areas served. Successful efforts were made to work with Clemson University in developing one state holder Advisory Council for 1890 and 1862 schools. Joint meetings were held with the 1862 Council to move toward

one Advisory Council. The merger of 1890 and 1862 Advisory Councils has created greater synergy in moving toward a stakeholder input process that, in the wake of declining program dollar support, is allowing for better programmatic collaboration in program delivery and project development between Clemson and South Carolina State.

The State Extension Advisory Council is made up of 34 members, two from each cluster and six (6) at-large members. Membership is for three years. As a member of the state council, the role and function is much broader than the service on a local committee. Members are kept fully informed on Extension programs through regular meetings and written materials submitted by the 1890 and 1862 Directors.

Members chosen for inclusion on the overall Council are not only leaders and innovators in their field, but community leaders as well. They are individuals deeply involved in their community and respected by their peers and by the community at-large.

Nomination for Council membership comes from local committees, from the advisory board itself and from at-large nominations. A request for at-large nominations will be sent to the system by October of each year. The Cooperative Extension Service Directors will issue an invitation to serve. Officers of the Council will include a Chairman, Vice-Chairman, and Secretary. Standing committees include: executive, program, budget and finance, and recognition. The Executive Committee shall consist of all officers and committee chairs. The Council elects the officers and the chairman appoints the committee chairs. Council Chairman serves as chair of the Executive Committee.

The Council Chairman appoints a Nominating Committee for report prior to the last regularly scheduled meeting each year. Officers are elected by majority membership present at voting. Terms of council membership, officers and committee appointments are by calendar year.

#### Responsibilities of Council Committees

Executive – The Executive Committee advises the chairman on overall operation of the Council. The committee also makes recommendations on council meeting agenda. The Executive Committee is made up of the chairman, vice-chairman, secretary, and committee chairs.

Program – The Program Committee monitors the overall Extension program activity and makes recommendations. The committee receives the Extension Plan of Work and narrative reports. They review the plan and make overall recommendations to the Council.

Budget and Finance – The Budget and Finance Committee has two main functions:

- (1) Plan and implement any fund-raising activity of the Council and provide oversight for their use.
- (2) Coordinate any Extension budget promotion activity conducted by the Council.

Meeting Frequency – The advisory council meets at least two times per year and will normally not meet more than four times per year. Meeting locations will vary but most will be centrally located in the state.

## **C. PROGRAM REVIEW PROCESS**

There have been no significant changes in the program review processes since the 5-Year Plan of Work was submitted in July, 1999.

## **D. EVALUATION OF THE SUCCESS OF MULTI AND JOINT ACTIVITIES**

South Carolina participates in a variety of multi-state, multi-institutional/organizational, and multidisciplinary activities. Several of these activities involve positions that are partially funded by South Carolina Extension funds but are located in other states within the southern region. The activities that are reported below are those activities for which South Carolina provided primary leadership.

### **Risk Management**

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

During program identification meetings, farmers and farm managers have identified issues that needed to be addressed such as management and marketing programs.

2. Did the planned programs address the needs of underserved and under-represented populations in the state?

Traditionally underserved and underrepresented populations were involved in identifying areas of need and were reached through this program. In 2005, a total of 3,618 white males, 1,115 white females, 1,049 black males, and 319 black females were reached in this area. In addition, 78 individuals classified as “other” were contacted. As many as 457 limited resource individuals were contacted through the program.

3. Did the planned programs describe the expected outcomes and impacts?

Expected outcomes and impacts were identified. Expected risk management outcomes and impacts were: 1) current situation, outlook and management strategy information to



the industry; 2) increased training for front-line agents and state specialists; 3) educational programs on market risk management tools available for use by primary producers and agribusinesses; and 4) development, distribution and training on microcomputer-based market risk management decision aids.

4. Did the planned programs result in increased program effectiveness and/or efficiency?

Program results increased effectiveness and efficiency. Program results include:

- Situation, outlook and management strategy information was developed for SC Agricultural industry
- Developed and delivered market management information through the SC Agricultural Outlook Conference (SC Agricultural Expo) February 2004.
- Materials were provided to County Agriculture Agents for county or cluster commodity programs in the region.
- Training for county agents and state specialists
- Six multi-state workshops were offered on tactical market risk management procedures with a focus on the current agricultural environment.
- Educational programs on risk management tools and products available for use by primary producers and agribusinesses: Eight multi-state workshops were offered on tactical market risk management procedures with a focus on the current agricultural environment.
- Educational programs on risk management tools and products available for use by primary producers and agribusiness: A regional (TN, NC, SC, GA, and FL), in-depth training on beef cattle market risk management was developed and offered to agricultural producers, lenders and other agribusinesses under the auspices of the Southeastern Beef Cattle Marketing School.
- Development and distribution of market risk management decision aids and data access: Spreadsheet-based software that reviews the existing marketing alternatives and calculates the potential performance of the strategies under varying market scenarios was improved and further developed. Further, a module on the probability of ex-ante price change derived from current market conditions was incorporated along with portfolio.

### **Forest Resource Management**

In 1999, the Master Tree Farmer program was broadcast by satellite to thirteen South Carolina locations. The popularity of this offering led other states to join, making Master Tree Farmer a regional program. It is documented that landowners are more willing to see forestry practiced on their land when they understand why things are done. The Master Tree Farmer courses are the only satellite broadcasts of their kind for forest landowners throughout the South. Each participating state land grant university has a coordinator making arrangements for their programs. Clemson University serves as the host for the programs. Forestry professionals from universities, private and public organizations participate as instructors and presenters. Broadcasts are live from

Clemson to viewing locations around the South. Participating states were Texas, Arkansas, Mississippi, Georgia, and Kentucky.

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

Critical issues addressed the need for educational efforts to teach landowners how to practice sustainable forestry, to determine options available to manage their land and meet their objectives, to learn basic terms and concepts of forest management, to become acquainted with services and assistance available for managing forest land, and to learn about best management practices for protecting the environment.

2. Did the planned programs address the needs of underserved and under-represented populations in the state?

Traditionally underserved and underrepresented populations were involved in identifying areas of need and were reached through this program. In 2003, a total of 634 white males, 249 white females, 40 black males, 18 black females, 15 other males and 14 other females were reached through educational programming in this area.

3. Did the planned programs describe the expected outcomes and impacts?

The outcomes to be measured were:

Number of participants who would recommend the program to other landowners.

Number of landowners who feel that the program will save them money when practicing forestry on their property.

Number of landowners who report that they will earn money by using knowledge they gained from the program..

Number of landowners completing the course who planned changes in the management of their forest property.

Number of participants who planned to attend a more advanced training program if it were offered.

Number who ranked their forest management level at good to excellent after the program compared to prior to the program.

4. Did the planned programs result in increased program effectiveness and/or efficiency?

Using video conference technology, the program was delivered to 2,875 forest landowners in 2001. Landowners representing 748,277 acres of forest land completed the course. Approximately 47 percent of the landowners were under 50 years of age and 20 percent were female. The Master Tree Farmer Program utilized 21 volunteers. The following impacts were derived from analysis of evaluation data collected after landowners completed the training:

1. Ninety-eight percent of the participants would recommend the program to other landowners.

2. Ninety-four percent feel that the program will save them money when practicing

- forestry on their property.
3. Ninety-five percent of the landowners report that they will earn money by using knowledge they gained from the program for an estimated total gain of \$16 million.
  4. Based on increased knowledge, eighty-eight percent of the landowners completing the course plan changes in the management of their forest property.
  5. Ninety percent of the graduates indicated that they would attend a more advanced training program if it were offered.

A follow-up survey was conducted one-year after the program. Forty-three percent of 545 surveys were returned. They report the following updated impacts:

1. Eighty-one percent report their forest management level at good to excellent compared to twenty one percent prior to the program.
2. Ninety-four percent plan changes in forest management practices.
3. Eighty-two percent have made changes as a result of the training.
4. Sixty-six percent plan to make additional changes to forest management practices.
5. Respondents indicate that the course will save landowners more than \$13 million and earn them a total of \$6 million.

Master Tree Farmer II, a more advanced level of training than MTF I, was delivered to 1700 attendees in 10 states in 2002. In 2003, Master Tree Farmer graduates attended a variety of related trainings, tours and landowner association meetings.

### **Fire Ant Research & Extension Program**

**Participants/Collaborators:** Principal Investigator -- Dr. Paul M. Horton, Clemson University, Clemson, South Carolina. Tim Davis, Clemson Extension Area wide Imported Fire Ant Specialist.

Other states and agencies include:

- USDA/ARS/CMAVE, Gainesville, Florida;
- USEPA, OPP/BPPD, Arlington, VA;
- US Army Environmental Center, Aberdeen, MD;
- US Army Center for Health Prevention and Preventative Medicine, Aberdeen, MD;
- TRADOC, Ft. Monroe, VA;
- SCARNG Environmental Office, Columbia, SC;
- Pest Management Office, Fort Jackson, SC;
- Texas Agricultural Experiment Station and Texas Agricultural Extension Service,
- Texas A & M University System;
- The University of Georgia Cooperative Extension Service, Athens, GA;
- LSU Agricultural Center, Baton Rouge, LA;
- OSU Cooperative Extension Service and Department of Entomology;
- USDA-ARS Stoneville MS
- Bayer Environmental Science Corporation
- DuPont
- Alabama Cooperative Extension Service, Auburn University;
- Pest Control and Urban Entomology, University of Florida, Gainesville, FL.

**Statement of Problem Prompting Research Initiative:** The imported fire ant (IFA) is a non-native, invasive, insect species having no naturally occurring enemies or control agents in North America. The current IFA infestation in the U.S. is five to seven times more dense than occurs in the native range of the IFA. It has become an important medical, social, agricultural and economic pest in every county in South Carolina. Currently management technology is limited to chemical control. Environmentally-friendly management decisions can only be made based upon sound knowledge of the economic, ecological, social, and biological components of this insect. The IFA program in South Carolina focuses on three specific areas. First, testing of novel biological and chemical controls for IFA. Second, testing integrated management strategies to enhance the technologies that are available. Third, adoption through education by the public of South Carolina of the most appropriate IFA control strategies available.

### **Accomplishments and Results to Date:**

#### *Fort Jackson*

A pilot IFA-Integrated Pest Management program with funding from DoD, EPA and industry was initiated as a model DoD IFA management scheme for use on other southern military bases. In this pilot two test sites were installed on Ft. Jackson, SC and McIntire ANG airbase in June, 2000 and have been monitored since then. This pilot is a fully integrated program which incorporates GIS/GPS mapping and the integrated use of selected chemical management techniques designed to supplement and enhance the release and establishment of the two biocontrol agents (*Thelohania* and *Pseudacteon triscupis*). As of October 2000, both the phorid flies and the microsporidian were found to have survived, reproduced and spread into new colonies locally on these two sites in the midland region of South Carolina. As a result of this success this pilot is being used as a model for the establishment of even larger IFA Management programs on three other military installations in the southern US. The SC tests have been monitored for three years. Based upon the results obtained in this study the Areawide Imported Fire Ant Suppression Program has been funded to test this model on a large scale and replicated in five states.

#### *Areawide Program*

South Carolina is one of five states cooperating with USDA/CMAVE in Gainesville FL to test and demonstrate the effect of combining large scale treatment of pastures with traditional fire ant bait chemicals with the biological controls *Thelohania* and Decapitating flies.

To date in South Carolina a control site in Abbeville County and a treatment site in Fairfield County have been selected. Both sites have been treated with traditional chemicals and both have seen population reductions below the threshold levels. Both sites have also need retreatment.

Two species of decapitating flies have been released at the Fairfield County site. *Pseudacteon triscupis* has been found to overwinter at the site. The status of *P. curvatus* overwintering is pending. *Thelohania* has been released and established at the site.

This is an ongoing project expected to continue through FY-07. South Carolina is expected to be funded at an average of \$100,000 per year for this project. Tim Davis has been hired to serve as an Areawide Fire Ant Extension Specialist to manage this project.

#### *Decapitating Fly Releases*

In addition to the areawide sites flies are now established in Clemson, Greeleyville, Fairfield, Richland and Anderson Counties. USDA-APHIS is supplying flies for approximately one release each year. Each of these sites is managed by local county extension agents and is developed as a “mini” areawide site with chemically treated sites combined with the release of biological controls.

#### *IFA General Extension Programs*

More than 55 training programs and production meetings were held throughout the state last in 2004 to teach IFA management techniques to more 1,711 agents, farmers and homeowners. Twenty-five research/demonstration sites have also been installed. Other extension efforts include mass media, newsletters, fact sheets, and news releases.

The Clemson University IFA Team joined with the extension and research personnel of 9 other land grant universities in a project to revise and publish a comprehensive and up-to-date extension bulletin on IFA management in urban areas. The title of the publication is “Managing Imported Fire Ants in Urban Areas.” More than 40,000 copies of this 18-page publication were printed and distributed during the past 12 months.

A comprehensive training program was developed and conducted to train DoD personnel IFA integrated pest management. 45 attendees from installations across the US attended. Approximately one-third of the attendees were senior military entomologist. The other attendees were Clemson Extension Agents and military base land managers.

An advanced inservice training was conducted for County Extension Agents to train them on fire ant management techniques and conducting fire ant extension programs. Twenty-five county extension agents have been trained through this program.

The Clemson IFA team is currently contracted to develop a general manual for fire ant IPM for landscape managers, military installation managers, extension personnel, and the general public. This will be a comprehensive publication on fire ant biology, traditional management strategies, and integration of novel biological controls.

The Experiment Station supported 20 MRF (Multi-state Research Funds) projects and invested more than \$3,300,000 on those projects in FY2003. Researchers participate in MRF projects in all four regions of the country (Southern, Western, North Central, Northeast).

The Experiment Station has conducted a systematic and detailed review of the most recent CRIS reports on these research initiatives and has monitored the progress of each project through site visits, and discussion sessions with the faculty, their respective department chairs and with the appropriate Associate Dean for the goal areas.

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

By their very nature, regional projects are designed by experts in the respective fields from all of the participating states, normally in the Southern Region to address critical issues identified by faculty and stakeholders in all of the participating states. The Southern Region also reviews selected program concepts with identified stakeholder groups.

2. Did the planned programs address the needs of underserved and under-represented populations in the state?

Experiment Station faculty participated in regional research projects which addressed youth and family issues, food safety issues and a wide range of plant and animal issues. The research was geared to meet the needs of the state's population, to include those groups considered under-served or under-represented. This was accomplished through stakeholder input and awareness on the part of research faculty of the needs of all segments of the population. Results will be transferred to these user groups through the Cooperative Extension Service, web-based communications, public service announcements and outreach through the county programs.

3. Did the planned programs describe the expected outcomes and impacts?

Each regional project detailed the outcomes and impacts as a part of the application process. These outcomes and impacts were developed at the meetings which set the regional projects in motion. The progress of these regional initiatives is monitored by Clemson's Experiment Station, the other states and by the Southern Experiment Station Directors.

4. Did the planned programs result in increased program effectiveness and/or efficiency? The concept of regional research initiatives is built around assembling the best talent to approach a problem and allowing faculty to develop the research design to maximize the effectiveness of the program in meeting the stated goals, and in achieving the maximum efficiency by utilizing talent and resources from multiple states.

## **Families - Financial Management**

Many South Carolinians are in great danger of not being financially stable and secure throughout their lifetimes. Because most people did not receive formal financial education in their youth, they need lifelong learning opportunities to help them improve their financial management skills.

Dr. Nancy Porter, state program leader for Family and Consumer Sciences and Extension family resource management specialist, is co-chair of the National Initiative Management Team for the Financial Security in Later Life National Extension Initiative, composed of 14

professionals across the United States. The vision for this educational effort is a nation of individuals who understand their finances and know how to get the most out of their resources. The second objective is to increase the capacity of local educators and their community partners to offer effective Initiative programs.

The national Roll-Out Conference was held in March 2002, which drew 240 professionals from 46 states, partner organizations and agencies, and a satellite videoconference December 2001 that linked 220 sites in 45 states and the District of Columbia. The first year of national program implementation was 2003, when 19 states reported that 14,141 individuals participated in one or more of eight Initiative-related programs. More than 30 states have plans to implement Financial Security in Later Life programs with seven more pending.

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

Increasing financial management skills is a critical issue identified by stakeholders in South Carolina. Job losses, uncontrollable spending and high debt, and little to no savings contribute to financial insecurity among families.

2. Did the planned programs address the needs of underserved and under-represented populations in the state?

Increasing financial literacy throughout the life cycle is essential to avoid many threats to financial security for all including the underserved and underrepresented populations of the state. Research indicates that *“low levels of financial literacy affect the quality of life of individual households, reduce wealth generation, and limit the attainment of goals such as buying a home, funding higher education, starting a business, and securing a comfortable retirement. “When taken in the aggregate [this] has important macroeconomic implications, as a more financially educated population contributes to market efficiency and thereby helps promote the general economic welfare.”*

*Fox, L., & Hoffman, J. (2004, Autumn). Federal Reserve personal financial education initiatives. Federal Reserve Bulletin, p. 447-457. Washington, DC: Federal Reserve.*

This program was delivered to address the needs of underserved populations via the Internet during the (Spring 2006). National data collection that will occur later.

3. Did the planned programs describe the expected outcomes and impacts?

The expected outcomes will include the percent of participants who increased their financial literacy, percent of participants who reported that they planned to utilize recommended financial management practices, and the amount of money saved, debt reduced and new dollars invested.

4. Did the planned programs result in increased program effectiveness and/or efficiency?

Based on program evaluations reported by Extension educators, 86 percent of participants increased their financial literacy and 67 percent reported that they planned to utilize recommended financial management practices. The Financial Security in Later Life Initiative has also had a direct economic impact on those who have completed Initiative programs. A group of 1,481 individuals who completed Initiative-related programs reported a total of \$2,923,113 of annual financial impact in dollars saved, debt reduced and new dollars invested. This is an average of more than \$1,900 per person per year. The website <http://www.reeusda.gov/financialsecurity> is the keystone of the Initiative, and facilitates delivery of information to educators and consumers in urban and rural areas across the country.

## **E. MULTISTATE EXTENSION ACTIVITIES**

Extension faculty and staff are currently involved in four multistate activities. The overall purpose of these programs is to foster interdepartmental, interdisciplinary, and intercampus communication and collaboration in the southern states. In addition, these programs will increase coordination and expansion of efforts in conducting educational programs throughout the southern region.

Multi-state Extension Activities are reported on Form CSREES-REPT (Revised 09/04) which appears on page 105 below.

The Virtual Small Fruit Center is creating more visible and active focal points for stakeholders within and outside the university for research, Extension, and outreach activities related to small fruit production, handling, processing, marketing and consumption. South Carolina is partnering with the states of North Carolina and Georgia on this program.

The Regional Forestry Position is a liaison of the southern land-grant universities and the USDA Forest Service - Southern Region. The Forester is responsible for increasing coordination and regional level technology transfer, information dissemination, and educational activities. Working closely within the Extension System and the USDA Forest Service, the Forester identifies opportunities and works with natural resource professionals to address them. South Carolina is one of thirteen southern states cooperating in this effort.

The Water Quality Position increased coordination and cooperation among EPA, state environmental agencies, USDA-CSREES, and Cooperative Extension. This position was also responsible for identifying and providing related Extension educational materials to EPA and others as appropriate and communicate research, and other educational needs of Extension audiences to EPA and other appropriate organizations. South Carolina was one of eight participating states on this position.

The Orchard Floor Management program provides leadership and direction to orchard and vineyard floor management in South Carolina, North Carolina, and Georgia. Specifically the program is used to evaluate orchard and vineyard floor management programs and provide support to county faculty through publications, field days, on-farm demonstrations, and in-service trainings.

South Carolina receives multistate input in the development of the yearly Pest Management



Handbook. Specialists from Georgia and North Carolina provide current pesticide information for various sections of the handbook. Due to budget restraints and specialist retirements the Pest Management Handbook was not updated in 2003 nor in 2004.

South Carolina is an active partner in the Southern Legislative Conference Imported Fire Ant (IFA) Extension/Research Program. This effort between federal, regional, state, and private sectors is essential to ensure that current and emerging IFA management technologies are effectively evaluated for regional effectiveness, and rapidly implemented where appropriate. This is especially important with candidate biological control agents whose survivorship and impact may be influenced by the climate, soils, topography, and native fauna/flora which vary widely throughout the southeast region.

The Regional Peach Initiative is a partnership between South Carolina and Georgia. The Initiative will increase coordination and expansion of efforts in conducting educational programs throughout the region.

## **1890 Multi-State Research and Extension Activities**

### **Extension – Families First: Nutrition Education and Wellness System (FFNEWS)**

The FFNEWS Program is a nutrition education intervention program designed to help families select and prepare meals that are culturally traditional, yet will improve their overall health. Upon completion of the program, participants are able to make rational food choices from a variety of foods, improve their diet through a wide selection of food and food supplements, improve the nutritional status of the family by better utilizing foods commonly available in traditional recipes, practice safe and nutritious home gardening and food preservation skills. Food stamp recipients are the primary targeted audience. This is a multi-state and multi-institution collaboration with Extension Programs at the following sites: Langston University (OK), Prairie View A & M University (TX), South Carolina State University (SC), Southern University and A & M College (LA), University of Arkansas at Pine Bluff (AR) and Lincoln University (MS).

### **Research – Comparative Study on the Impact of NAFTA on South Carolina and the Southeastern Region**

The North American Free Trade Agreement (NAFTA) is a multi-state research endeavor that includes South Carolina and the Southeast Region. The study evaluates the impact of NAFTA on fruit and vegetable trade at the state and regional levels in South Carolina and the Southeast region. The project results indicate that the average small farms are negatively affected by free trade under both optimistic and pessimistic scenarios. Optimistically, land prices for the average small farms exhibit a slight increase over the 10 year period, while pessimistically, the ending land prices are lower than beginning prices. Overall, the average small farms are at a competing disadvantage in globalization.

## **F. Integrated Research and Extension Activities**

As required by the AREERA Act of 1998, the Experiment Station and the Cooperative Extension Service at Clemson University have integrated their efforts to foster knowledge development and transfer for the citizens of South Carolina. The process of involving the integration of research and Extension efforts are as follows:

A critical element for successful integration efforts is the joint appointment of faculty in both research and Extension. This is done both at the administrative and specialist levels. In addition, programs are jointly conducted by both research and Extension faculty at the South Carolina Research and Education Centers. Each center has a specific program focus where both research and Extension faculty collectively work together to identify problems, develop solutions to address the problems and then develop a mechanism to transfer appropriate solutions and/or recommendations to the citizens of the state.

U.S. Department of Agriculture  
 Cooperative State Research, Education and Extension Service  
 Supplement to the Annual Report of Accomplishments and Results  
 Multistate Extension Activities and Integrated Activities  
 (Attach Brief Summaries)

Select One:  Interim  Final  
 Institution: Clemson University  
 State: South Carolina

	Integrated Activities (Hatch)	Multistate Extension Activities (Smith-Lever)	Integrated Activities (Smith-Lever)
Established Target %	15%	2.19	8.79
This FY Allocation (from 1088)	\$3,210,998	5,152,187	5,152,187
This FY Target Amount	\$ 481,649	112,832	452,877

Title of Planned Program/Activity

Turf Grass	\$113,323		59,083
Marketing	50,000		50,000
Agro-Ecology (Integrated Pest Man)	63,572		173,854
Fruit Crops	24,008		25,000
Field Crops (Integrated Crop Man)	230,746		275,000
Virtual Small Fruit Center		35,000	
Regional Forestry Position		7,450	
Regional Water Qual Pos. (EPA)		15,000	
Orchard Floor Management		15,000	
Fire Ant Program ....		54,984	
Regional Apple Position		8,000	
Total		135,434	
<b>Total</b>	<b>\$481,649</b>	<b>135,434</b>	<b>582,937</b>
Carryover	0	0	0

Certification: I certify to the best of my knowledge and belief that this report is correct and complete and that all outlays represented here accurately reflect allowable expenditures of Federal funds only in satisfying AREERA requirements.

Director \_\_\_\_\_ Date: 04/01/07

Form CSREES-REPT (Revised 09/04)

#### Experiment Station Narrative Summaries:

Turf Grass: The Experiment Station provided funds to support Extension staff and programs in selected counties in conjunction with on-going turf research initiatives.

Marketing: The Experiment Station and Extension provide equal funding for a joint public relations/marketing unit. Information Technology: The Experiment Station shares the expenses for supporting the technology information office that coordinates computer support at all on and off campus locations.

Agro-Ecology Program: The Experiment Station continues to support this innovative Agro-ecology Program.

Fruit Crops: The Experiment Station works closely with Extension in the development and transfer of technologies and approaches to deal with root rot and brown rot in commercial peach orchards with special emphasis on use of reduced risk fungicides.

Field Crops: The Experiment Station and the Extension Service are heavily involved in coordinated and integrated research, technology transfer and educational programs for growers at the university's research and education centers in Florence, Blackville and Charleston. Major crops include cotton and soybeans and beef cattle is a major emphasis as the Blackville station.

#### Extension Service Narrative Summaries:

Turf Grass: The Extension Service provided funds to support research staff and programs in selected counties in conjunction with on-going turf research initiatives.

Integrated Pest Management(Agro-ecology): Extension uses demonstration plots and conducts field days at the Research Centers. These activities are on-going and require a significant commitment of equipment and staff to insure quality demonstration plots and field days.

Fruit Crops: Extension works closely with the Experiment Station in the development and transfer of technologies and approaches to deal with root rot and brown rot in commercial peach orchards with special emphasis on use of reduced risk fungicides.

Integrated Crop Management (Field Crops): Extension and Research work closely with the development of practical application of technologies and approaches for various field and fruit crops.

Enhancement of Applied Research and Extension Activities (information Technology and

Marketing): The Experiment Station and Extension provide equal funding for a joint public relations/marketing unit. Information Technology: The Extension Service shares the expenses for supporting the technology information office that coordinates computer support at all on and off campus locations.