

SOUTH CAROLINA
FY 2005
ANNUAL REPORT OF
ACCOMPLISHMENTS

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CLEMSON UNIVERSITY
SOUTH CAROLINA STATE UNIVERSITY

CERTIFICATION:

This Annual Report for the Joint Plan of Work for the period October 1, 2004 to September 30, 2005 for Research and Extension in South Carolina is respectfully submitted April 1, 2006 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) **Impacts: Integrated Resource Management Beef Production Systems:** The goal of the Integrated Resource Management Beef Production Systems program at the Edisto Research & Education Center near Blackville is to evaluate the integration of recommended, available with new genetic, nutritional, forage and management resources into efficient, productive, profitable and environmentally-friendly beef production systems for South Carolina's Coastal Plains. 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 398 educational programs and activities were conducted for stakeholders, with 11,991 people participating. Of these, 8,818 said that they increased their knowledge and 5,614 indicated that the plan to adopt recommended practices and/or technologies. 1,104 program participants indicated that they actually have adopted practices or technologies that they learned about during educational programs. Specifically 87 producers indicated that they are currently implementing recommended sustainable grazing management practices. In addition, 31 producers reported improved livestock breeding programs as a result of adopting recommended breeding and reproduction methods, and 605 young people participated in educational activities focused on youth training in sustainable animal production.

Patent Disclosures

The Recovery of bovine Proteins for Therapeutic Use
The Recovery and Use of Supramammary Lymph Node Proteins for Serum Replacement

Patents Filed

Feed Supplement Delivery System
A Novel Immunotherapy for Breast Cancer

Technical Contributions

20

- 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. 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 199 educational activities conducted, with 5,952 people completing educational programs. 5,216 participants reported increased knowledge, 2,928 indicated that they plan to adopt learned practices, and 277 people said that they have adopted the practices. Horticulture extension personnel reported that recommended Horticulture ICM practices have been adopted on over 251,307 acres in South Carolina, and that over 25,444 acres have been planted to new, alternative and high value horticultural crops.

Highlights of Peach ICM Activities: Long-term peach system trials at the Musser 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. Other field trials are underway to compare the use of raised beds, root collar excavation and mycorrhizal root dips to reduce the incidence of *Armillaria* root rot disease. Laboratory experiments are also underway to genetically engineer a rootstock for peach with a gene that confers resistance to this serious peach disease.

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). Also, at the Clemson Peach Website, noted previously, many relevant articles are available for commercial growers to read to assist them in management decision making. A new Southeastern Peach Growers Handbook was published with comprehensive information on best management practices for peach (http://entomology.ent.uga.edu/Peach/peach_handbook/hbk.htm) with much info relative to ICM.

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.

Patent Disclosures

Lectin Gastrodianian Confers Enhanced Tolerance to Phytophthora Nichtianae in Transgenic Plans

Patent Applications

Lectin Gastrodianian Confers Enhanced Tolerance to Phytophthora Nichtianae in Transgenic Plans

Genes Controlling Winter Dormancy in Woody Perennials

Technical Contributions 9

- 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. 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 B
The Agronomic Crop ICM Program organized 393 educational programs and activities during 2005, with 9,791 participants attending. Of these, 6,942 reported increased knowledge, 4,243 indicated that they plan to adopt recommended agronomic practices, and 866 said that they actually have adopted agronomic production practices that they learned about during educational events. Agronomic Crop ICM extension personnel reported that 274,473 acres of South Carolina row crops are currently grown using recommended ICM practices, and over 11,815 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.

- 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

Injection Molding Using Plant Based Material Kenaf

Injection Molding Using Composites of Plant-based Materials:

Kenaf, Corn & Tumeric

Tobacco Harvester Modifications to Prevent Spread of Bacterial Wilt

Technical Contributions: 48

- 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) 2005 was a transition year in which 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). We have increased the number and diversity of stakeholders who provide input into the planning process for statewide training. 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. Training activities in 2006 will focus 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. 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) 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)

- a. 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 market by, direct and group marketing, and, as a result, farmers obtained higher prices for their herd. The skills enhanced small farm enterprise management, decision-making, and low-production cost concepts. In order to accomplish the strategies, the Livestock Program in collaboration with Heifer International, provided a select group of farmers access to a pure bred bull. Through participation in the Livestock Program, farmers have access to training that can increase their herd management skills and enable them to make more informed business decisions.

- b. **Impact:** The Livestock Program conducted 117 educational programs and hands-on activities for limited resources farmers, with 176 farmers participating. Of the participants, 165 farmers increased their knowledge and 140 planned to adopt the recommended practices. Specifically, 85 farmers adopted the recommended practices to improve their production management, marketing, and farm enterprise management. Through the risk management education training, 51 farmers adopted educational information and integrated the techniques into their farming operation. Of the participants, 123 farmers are making progress toward farm retention and 40 reported an increase in their farm income.
- c. **Source of Federal Funds:** Smith-Lever
- d. **Scope of the Impact:** State

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

- a. The Commercial Vegetable Production Program at South Carolina State University provides educational and technical assistance to small scale, part-time and limited resource farmers. The producers traditionally planted row crops, but are encouraged to grow vegetables using the latest practices. The farmers participated in production meetings, workshops, on-farm demonstrations, marketing, and farm tours. The activities are intended to improve cash flow and slow the economic decline of small farms. In collaboration with North Carolina A&T State University, farmers were trained in the areas of specialty marketing and display of fruits and vegetables. Using the farmers' market, home gardeners and commercial vegetable producers have 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 participating farmers access to an additional source of income.
- b. The Home Gardening and Fruit Production program was offered to limited resource families and individuals interested in growing fresh produce. 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 wellness.
- c. 1890 Extension agents conducted 111 educational programs to include: workshops, on-farm demonstrations, production meetings, farm tours, and technical assistance. Of the 310 farmers participating, 250 were reported as having increased their knowledge, and planned to

adopt the recommended practices. In addition, 148 actually adopted the recommended practices learned, and 150 farmers incorporated the recommended practices into their farming operation. Through the commercial vegetable production and marketing program, 88 farmers committed to the maintenance and retention of their small farm and reported an average income increase of 25 percent.

- d. The Home Gardening program provided 19 educational activities to include: workshops, on site demonstrations, and trainings. Through these activities, 28 home gardeners were enrolled. Of the participants, 16 increased their knowledge of gardening techniques and planned to adopt the recommended practices. Eight 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.
- e. Source of Federal Funds: Smith-Lever
- f. Scope of Impact: State

Key Theme: Sustainable Agriculture Programs, Production and 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 include 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

- b. Alternative Enterprises such as Pastured Poultry and Agriculture projects are offered to farmers with small acreage and limited resources. On-farm ponds are used to grow Catfish and Tilapia, and small pastures provide space for raising free range and pastured poultry. Small farm leadership training is conducted in organized groups in collaboration with state small farm associations. The Integrated Pest Management Program emphasizes soil sampling, nutrient management, and reducing the use of pesticide and herbicide applications that are harmful to the environment. The practices are recommended to small, part-time, and limited resource farmers. Risk Management Education courses are conducted for limited resource farmers to increase awareness of the risk associated with agriculture production. In addition, the risk management education course focuses on simplified farm record keeping, which encourages participants to maintain farm records on a continuous basis, and improve financial management.
- c. Sustainable Agriculture Programs encourage and promote activities that foster sustainable agriculture practices and policies. The programs educate farmers on ways to implement

production systems that require the application of low off-farm input and provide opportunities for farmers to grow crops that satisfy consumer demand within environmentally safe conditions.

- d. The Integrated Pest Management Project provided 26 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 legal issues. Farm leadership training was conducted during four state small farm association meetings. Pastured Poultry and aquaculture demonstrations were held on two farms. Total enrollment for all sustainable agriculture programs was 183. Of the farmers, 152 increased their knowledge of sustainable practices and planned to adopt, 75 adopted the recommended practices and incorporated them into their farm operation. Of the total participants, 70 farmers are making progress toward farm maintenance and retention. Seventy-seven participants increased their farm income.
- e. Source of Federal Fund: Smith Lever
- f. Scope of the Impact: State

Key Theme: Integrated Pest Management – (1890)

Mapping and Isolating Genes in *Drosophila Melanogaster* that
Regulate Cuticular Hydrocarbons
Project # SCX-420-18-04 Project Duration: May 2004 – May 2008

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. However, insects can potentially evolve resistance to non-toxic control measures, as they have to conventional pesticides, thus reducing both their effectiveness and the confidence farmers place in them.

A genetic analysis has been undertaken to quantify the number of genes involved in the production and response to cuticular hydrocarbons that act as pheromones in the fruit fly, *Drosophila melanogaster*. This fruit fly is genetically, physiologically, and behaviorally similar to other fly species that are pests, such as mosquitoes, tsetse flies and med flies. The genetic analysis will help evaluate the likelihood that resistance will evolve to long term use of pheromone-based control measures. A more complex genetic basis for production and response to pheromones would indicate a lower chance of resistance evolving. A simpler basis would indicate a greater likelihood. To date, researchers have determined that at least four genes on three chromosomes contribute to the production of an important sex pheromone mix in this species. The genetic architecture of the pheromone profiles of these flies is thus complex, and it is likely that resistance to pheromone-based control measures would evolve slowly, if at all.

Emphasis is now being placed on identification of specific genes that control pheromone production and perception. Using DNA microarrays 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 Polymerase Chain Reaction (PCR) will confirm the role of the genes in pheromone synthesis. Sequencing will allow the basis for genetic variation in pheromone synthesis to be identified.

IMPACT:

Evidence that pheromone-based control measures could be used on a long term basis without substantial resistance evolving increases the confidence farmers may have in the effectiveness of the methods. A subsequent reduction in use of conventional pest control measures would improve the safety of agricultural produce from a consumer perspective, reduce farmers' exposure to hazardous pesticides, and reduce costs for small farmers.

- This research is a form of educational assistance to farmers to aid them in evaluating and adopting integrated pest management techniques.
- The development of targeted pest control measures will be enhanced by a detailed understanding of the molecular basis for pheromone regulation.
- This research also provides training to undergraduate students, improving their ability to pursue graduate studies.

PERSONNEL:

This project has employed 8 undergraduate research assistants, and one graduate research assistant (all majoring in biology). The graduate research assistant has since become a technician in the laboratory. Undergraduate research assistants have had an excellent record of pursuing further studies.

- One has graduated and gone to veterinary school at Iowa State University.
- One has pursued a degree in sports medicine at Indiana University Bloomington.
- Three others either have been accepted to or are currently enrolled in Ph.D. programs at Cornell University, Stanford University, and East Carolina University.

COLLABORATIONS: The continuation of the project will entail collaboration with Dr. Harbinder Singh-Dhillon at South Carolina State University to include a molecular component to the analysis of pheromone production and perception in Dipterans.

Scope of Federal Funds: US Department of Agriculture, Cooperative State Research Service, Evans-Allen

SCOPE OF IMPACT: State and National

Key Theme: Integrated Pest Management

Title: Germination Physiology of Vegetable Crop Seeds as Affected by Air

Pollutants

Project # SCX-420-22-02

Project Duration: October 2002– September 2005

This investigation examined the benefits to the seed germination process in polluted environments. Ten vegetable seeds species, highly consumed in South Carolina were used in the research project. The vegetables examined were yellow squash, collards, black-eyed peas, spinach, mustards, bell pepper, lima beans, eggplant, pumpkin, and tomato. Distinct visible injury was noticed by the treatment with sulfur dioxide (SO₂) and nitrogen dioxide (NO₂) in many seed species prompting mold infection and leaf drop. The visible injury was not pronounced by the carbon monoxide (CO) treatment. Germination percent was affected in most seed species except the treatment with CO possibly due to the tissue damage by pollutants in seeds. All seeds species showed the highest water absorption by the NO₂ treatment as compared to the control. Mustards and black-eyed peas showed high absorption rate by the carbon monoxide treatment. Respiration in germinating seeds showed diverse results. In all pollution environments, black-eyed peas showed reduced respiration rates as compared to the control. In a SO₂ environment, eggplant reached a high respiration rate in 4 mm. time. Lima beans showed good respiration rate in polluted environments. Treatment with nitrogen dioxide enhanced sugar production in spinach, bell pepper, tomato, black-eyed peas, collards, and eggplant. Sulfur dioxide treatment enhanced sugar production in pumpkin, yellow squash, mustards, and lima bean species. Lipid synthesis showed diverse results among its species in polluted environments. Tomato seedlings showed the lowest lipid production after a 6 hour treatment in carbon monoxide and nitrogen dioxide. It appears that bean species, lima beans, and black-eyed peas, had higher lipid content as compared to other seed species regardless of treatments. Synthesis of DNA showed diverse results in polluted environments. Both scientists and farmers were informed of changes in germination physiology along with some chemical changes in seeds due to exposure of specific pollutant gases. Recent reports from the Bureau of Air Quality indicated that levels of carbon monoxide and sulfur dioxide are on a steady rise.

IMPACT:

The farmers are not able to determine the loss in seeds and seedlings of vegetable species. Pollutants such as NO₂ and SO₂ damaged the seeds more drastically during germination compared to CO. Both germination and seedling growth were not affected by carbon monoxide treatment in some species probably due to an acid rain effect. Both physiological and metabolic processes were explored in seed species affected by air pollutants and acid rain. Several variables were explored which included seed germination, seedling growth, rates of water absorption, respiration, synthesis of DNA, RNA protein, lipids, sugar and ATP. Pollutants such as NO₂ and SO₂ damaged the seeds more drastically during germination compared to CO. Both germination and seedling growth were not affected by carbon monoxide treatment in some species probably due to an acid rain effect.

PERSONNEL: There were 21 undergraduate students majoring in biological sciences and one research assistant working on the project.

COLLABORATIONS: Dr. Johnnie J. Jenkins, Jr./faculty at South Carolina State University and Simon Gilmore/USDA Liaison

SOURCE OF FEDERAL FUNDS: US Department of Agriculture, Cooperative State Research Service, Evans-Allen

SCOPE OF IMPACT: State, National and International

Key Theme: Sustainable Agriculture (1890)

Dynamic Analysis of the Impact of NAFTA on Technological Changes in South Carolina Agriculture

SCX-522-10-04 Project Duration: January 2005- January 2008

This project will identify the production, export, and productivity gains in the chicken, hog, and tobacco sectors attributable to NAFTA in South Carolina and provide a comparison with the rest of the SER. The North American Free Trade Agreement (NAFTA) has been effective since January 1, 1994. Economists and analysts already have begun the evaluation of NAFTA impacts on the agricultural and general economy. The rise in agricultural productivity has long been chronicled as the single most important source of economic growth in the U.S. farm sector (Ball et al, 1999, 2001). However it is less clear as to the extent to which NAFTA has influenced development of new technology or how technological advances have improved agricultural productivity under NAFTA. There is a need to address the impacts of NAFTA on agricultural technologies by farm sector. The benefits and costs of chemical use as fertilizers and pesticides in agriculture, in terms of the augmentation of both effective production and environmental degradation, have long been debated. The study examines the effects of increases in the stringency of environmental regulations on competitiveness of chicken, hog, and tobacco production and trade in the South Carolina and the rest of the Southeast region (SER).

We have collected time series data on production and exports of chicken, hogs from the State of South Carolina and the rest of the southeast region. Other financial data such as product prices and state farm products are obtained from various state websites and USDA databases. We have also reviewed literature on productivity indexes. Specific productivity formulae are being used to compute productivity indexes that will be used in the analysis of NAFTA impacts on productivity in the three sectors of interest.

IMPACT:

The chicken, hog, and tobacco sectors were chosen in the study since the productions are important in the South Carolina economy. The chicken 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. The project seeks to identify the production and productivity gains in the chicken, hog, and tobacco sectors under NAFTA in South Carolina and provide a comparison with the rest of the SER.

PERSONNEL: Four undergraduate students worked with the research project. The students' majors included agribusiness, accounting and management.

COLLABORATIONS: Dr. Won Koo, Professor of Economics and Director of the Center of Agricultural and Trade Studies, (CAPTS) at North Dakota State University; GTI, Inc. Global Trade Atlas and USDA.

SOURCE OF FEDERAL FUNDS: US Department of Agriculture, Cooperative State Research Service, Evans-Allen

SCOPE OF THE IMPACT: State of South Carolina.

Key Theme: Creating a Sustainable Environment (1890)

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

SCX-420-23-05 Program Duration: May 2004 – May 2007

During the last decades, large amounts of polycyclic aromatic hydrocarbons (PAHs) have been released into the environment as a result of extensive production of industrial chemicals and agricultural application of pesticides. The problems associated with PAH contaminated sites now assume increasing prominence in many countries. Due to their carcinogenic and mutagenic properties, PAHs are considered as environmental priority pollutants. The problem is worldwide, and the estimated number of contaminated sites is significant.

The long term goal of the investigation is to identify and characterize genes possessed by two novel strains of *Sphingomonas* that are involved in the degradation of polycyclic aromatic hydrocarbon(s). The bacterial strains were recently identified from a waste lagoon at the Czechowice Oil Refinery (CZOR) in Katowice, Poland. Initial analysis of the new two *Sphingomonas* strains, designated BPF and BPH, revealed that they are capable of degrading a number of environmentally hazardous PAHs. Specifically, *Sphingomonas* strain BPF is capable of converting indole to indigo and degrading naphthalene, phenanthrene, aaphthal, acenaphthene, fluoranthene, pyrene, and benzo[b]fluoranthene. Examination of *Sphingomonas* strain BPH revealed that it had the same capabilities as strain BPF, except that it was incapable of degrading aaphthalene and was capable of degrading anthracene. In addition, the waste lagoon of the CZOR represents an extreme environment due to its cold temperatures and acidic nature. The two novel *Sphingomonas* strains isolated from the CZOR are of considerable interest because they are capable of surviving under these harsh conditions. While the climate of the CZOR's waste lagoon is cold, the *Sphingomonas* strains recently isolated are also capable of growing at a temperature of 28°C. The primary objectives of the application are to identify the genes involved in PAH degradation by the two novel bacterial strains and to define their mechanisms of regulation so that they can be successfully used in bioremediation efforts.

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 these 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

PERSONNEL: Two undergraduate students have been employed for this project. They are both majors in biological science.

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

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

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

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.

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.

- 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 34 programs and activities were conducted which dealt with the area of economic analysis of enterprises and technologies with 369 participants. Of those participants, 253 indicated an increase in knowledge and/or adopted or increased the use of recommended practices.

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. 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. Two workshops were conducted in FY 03-04.

A total of 20 programs and activities with 159 participants. Of those participants, 142 indicated an increase in knowledge. One hundred two persons reported that they either adopted or 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.

Technical Contributions

54

- 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

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.

- a. 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 620 food handlers participated in a 10-hour certification course in food handling and passed an exam to receive a certificate. An additional 15 people were reached with food safety information by volunteers who participated in an Extension training program. Counties report that while teaching ServSafe \$8,160 was generated in program support. Counties conducted 58 food safety education programs Farm to Processing, including Biotechnology, reaching 973 people. Of this number, 119 reported an increase in knowledge and 81 adopted a recommended practice.

An additional 356 food safety programs were conducted for the general public, reaching over 6,047 persons. Of this number, 4,156 reported an increase in knowledge and 1,969 adopted a recommended practice.

Counties reported that 456 Making It Healthy Media programs were conducted and 1,144 press kits distributed, with 9,447 column inches appearing in the printed media, 591 minutes of television air time, and 995 minutes of radio air time in the areas of food safety and nutrition.

Counties conducted 63 food handling educational programs reaching 915 people. Of this number, 852 reported an increase in knowledge and 279 adopted or planned to adopt a recommended practice. There were 165 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:

Disposable Pipette Extraction
Electrical-based Sanitizing Surface and Materials

Technical Contributions: 6

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

e. Scope of Impact – State and Regional

Key Theme: Food Safety (1890)

- a. Consumers need help to minimize their risk from harmful pathogens in the food supply. 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. The food safety workshop is a one-hour training, utilizing the FF-NEWS (Families First - Nutrition Education and Wellness Systems) curriculum, which incorporates concepts about cleanliness and temperature controls. Participants are asked to define foodborne illness and discuss conditions that encourage bacteria to grow. Participants also learn the most common food borne pathogens, additives, preservatives, and basic kitchen safety techniques.

- b. Impacts: Participants at Brookdale Elementary School, Sheridan Elementary School, W.J. Clark Middle School, the Allendale County Department of Health and Environmental Control, the Clio Community Group, the Marlboro Council on Aging, and the Mt. Tabor Baptist Church were lead in group discussions about food safety. A total of 554 students and adults participated in 24 workshops. Of this number, 506 participants increased their knowledge about food safety, security, and quality. There were 483 participants that demonstrated proper food safety and sanitation practices and 478 participants that promoted proper food safety practices within the community.
- c. Source of Federal Funds: Smith - Lever
- d. 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. 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 worked 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 73 educational programs and activities conducted with 1070 participants. Of these, 702 reported increased knowledge and 399 plan to adopt practices that they learned.

Specific activities conducted during 2005:

- 46 County CARTs were established and equipped with response gear and supplies.
 - 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. 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 4,641 educational programs in nutrition and health reaching 15,668 adults; 11,980 of these reported gaining knowledge, 6,707 planned to adopt a recommended practice, and 3,065 reported adopting a recommended practice. There were 1,728 hours of volunteer time contributed to *EFNEP*.

During FY 05, when the adult participants entered the program, only 11 percent reported diets that contained foods from all five food groups. This percentage increased to almost 30 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 93 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); 89 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 72 percent of participants showed improvement in one or more food safety practices (i.e., thawing and storing foods properly).

Impacts for Food and Nutrition Education for Youth include:

EFNEP Nutrition Educator Assistants (NEAs) conducted 3,909 educational programs in nutrition and health reaching 54,696 children and youth. There were 4,907 hours of volunteer time contributed to 4-H EFNEP.

Of the children and youth surveyed, 28,155 of these reported gaining knowledge, 14,896 planned to adopt a recommended practice, and 5,527 reported adopting a recommended practice.

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

Key Theme: Nutrition and Health (1890)

- a. Healthy meal choices are essential for healthy lifestyles. A healthy eating plan can both reduce the risk of developing high blood pressure and lower an already elevated blood pressure. The healthy eating workshop is a one-hour training about the importance of healthy eating and daily healthy food choices. Participants learn about the revised Food Guide Pyramid, label reading, comparison shopping, portion control, water intake, and exercise. They also construct a greenhouse in a bag to demonstrate the process of growing fresh fruits and vegetables. A Health Olympic Field Day is held to emphasize the importance of exercise in a healthy lifestyle.
 - b. Impact: Participants at Bamberg Head Start Center, Bowman Head Start Center, St. Matthews Head Start Center, Holly Hill Head Start Center, Ellore Head Start Center, the Orangeburg Area Development Center, Scott’s Branch Intermediate School, Woodland High School, the Orangeburg County Council on Aging, the Calhoun County Council on Aging, Whittaker Elementary School, Bowman Elementary School, Marshall Elementary School, St. Mark United Methodist Church, Macedonia Baptist Church, Project FLAVA (Families Linked Against Violent Activities), Bethune-Bowman Middle/High School, Marlboro Council on Aging, Mullins Council on Aging, Mt. Tabor Baptist Church, Pleasant Hill Baptist Church, and Project Positeen were lead in group discussions about healthy eating. A total of 1,859 children and adults participated in 227 workshops. Of this number, 1,121 reported an increase in their knowledge about nutrition, diet, and health. There were 1,123 participants that adopted healthy lifestyle practices and 981 participants adopted dietary and nutritional assessment plans. A total of 106 adults participated in the Health Olympic Field Day.
 - c. Source of Federal Funds: Smith - Lever
 - d. Scope of Impact: State
- a. Over half of American adults are overweight and obese. Diet and physical activity are important elements in the prevention and treatment of obesity related conditions such as diabetes, hypertension, and heart disease. The diabetes workshop, utilizing the FF-NEWS

curriculum, is a one-hour training about the importance of diet and exercise in the treatment and maintenance of diabetes. Participants learn the definition of diabetes, symptoms of the disease, and methods of treatment.

- b. Impact: Participants at Bamberg Job Corps, West Minister Presbyterian Church, South Hope Center, and Paxville Community Development Center learned about diabetes. A total of 89 adults participated in 16 workshops. Of this number, 75 reported increased knowledge about diabetes and 56 adopted healthy eating practices.
- c. Source of Funds: Smith-Lever
- d. Scope of Impact: State

GOAL 4: GREATER HARMONY BETWEEN AGRICULTURE AND THE ENVIRONMENT

Key Theme: Creating 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

- a. In 2003, programs such as Home A Syst, Enviroscape, Water Wise, and Project Wet were conducted with youth and adult audiences. Train the trainer sessions were conducted for volunteer groups and greenhouse growers. In addition conducted programs at the University of Georgia, attracting growers from Florida, Georgia, and Alabama. Assisted in the coordination of the Beach/River Sweep. In 2004, programs such as Carolina Yards and Neighborhoods Program, Stormwater Management Camp, and Envirothon were conducted.
- b. Impacts
In 2003, a total of 383 programs conducted, with 4, 926 people completing these programs. Of the number who completed programs, 3,079 people reported an increase in knowledge. Over 2,000 people received information through phone, farm or office visits. 4H20 Day Campers assisted with water quality testing project on the Edisto River for

National Water Quality Monitoring Day. Youth learned to test water, make and learned to use a secci disk, calculate water clarity, and learned about the water cycle.

In 2004, 495 programs were conducted, with 6,028 people completing programs. Of the persons completing programs, 3,883 reported gaining new knowledge. Over 1,000 people received information through phone, farm or office visits.

Developed and made commercially feasible specifically designed constructed wetland treatment systems that remove toxic elements from waste water streams such as Mercury, Selenium, and Arsenic to levels of 97 to 99%. This removal is unprecedented by current chemical or physical treatments (50 to 80% removal).

The constructed wetland treatment systems designed to remove copper and mercury for Savannah River site have resulted in greater than \$10 million savings and restored life in the receiving streams. This work won a DOE award.

A new publication “Life at the Water’s Edge” a guide for water quality protection on lakeshores and streams was released.

In 2005, a total of 163 programs conducted, with 4, 262 people completing these programs. Of the number who completed programs, 2,368 people reported an increase in knowledge and 1,568 planned to adopt practices learned.

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

Key Theme: Creating Sustainable Environment -Water Quality –(1890)

BMPs and Responsible Homestead Practices to Reduce Fecal Coliform Bacteria in the Horse Range Swamp Watershed

- a. The program is designed to provide educational assistance to the homeowners, landowners and businesses regarding poultry and swine of non-point pollution runoffs. The homeowners have sewer discharges from malfunctioning septic tanks.

An Educational Water Quality Workshop was held at Santee State Park to provide the following: (1) To educate the attendees on problems found from water, and (2) To provide suggestions on corrective actions to be taken. A Youth Water Quality Educational Day Camp was held for three days at Santee State Park. Approximately, 325 students participated in the activity. The students were from the Orangeburg Consolidated Schools, Holly Hill Middle School, Holly Hill Academy and Elloree Middle/High School. The activities involved collecting water samples and testing for ph, temperature, turbidity, nitrates, and dissolved oxygen. Information on how our groundwater system works was

given. Information on what is a watershed was shown. In addition, Non-point and Point Source Pollution model of the EnviroScape was used to explain pollution problems found in the Horse Range Watershed. Wetlands and Wildlife preservation conducted at the Beidler Forest was presented. Recycling of paper products, glasses, used oil and tires were displayed. Corrective ways to discard unwanted materials were discussed.

Impact: It is anticipated that homeowners would have their septic tanks inspected yearly and pumped by a licensed septic tank contractor. They were encouraged to keep their septic tank covered and accessible for inspection. Homeowners should check their yards for any standing water or runoff from their property. Also, it was suggested that homeowners participate in the recycling programs in their community.

Two undergraduates biology majors worked with the program.

- b. **Source of Federal Funds:** EPA Grant - Sections of 319 Clean Water Act.
- c. **Scope of the Impact:** Four Hole Swamp Community (Orangeburg County).

Key Theme: Creating A Sustainable Environment – Water Quality -- (1890)

A Thorough Assessment of Toxic Chemicals and Remediation of
Drinking Groundwater Sources in Rural Areas

Project# SCX-420-19-00

Project Duration: October 2000 – September 2005

During this period we have tested various water samples for semi volatile organic compounds using EPA-Method 525.2. A 30-m fused silica capillary column for GC/MS system (Alltech, serial number 406148), 0.25 mm ID, packed with stationary phase (5% phenyl equivalent polysilphenylene-Siloxane, AT-5ms) with a film thickness of 0.25 μm was used.

Five different kinds of cartridges of polymer kind with 1.00-g silicate particles coated with C-18 organic absorbents have been tested. Two of those cartridges were from Burdick & Jackson, two from Allteck Associates, Inc., and one from Agilent Technologies. During sample collection, to each sample 40-50 mg of solid sodium sulfite was added for dechlorination purpose; the pH of the samples were adjusted to < 2 at the sampling site with 6 N hydrochloric acid to retard microbiological degradation. Samples were collected in amber glasses, iced, kept in the dark, and refrigerated at 4°C before use. Ethyl acetate, methylene chloride, and methanol were used to pre-wash the cartridges; ethyl acetate and methylene chloride were used to elute the cartridges after passing 1.0 L of water during two hours under 5-in. vacuum as described by EPA-Method 525.2. The research indicates that none of the above mentioned cartridges were suitable to be used for SPE because of leaching various types of phthalate esters, silicon compound and other plasticizers that make analysis unreliable.

Also, water samples were tested with the same silicate coated with C-18 organic absorbents prepared using a specially ordered glass barrel instead of polypropylene. The results of all tests indicated that for separating no matter what kind of cartridge one uses, it would produce

unwanted peaks resulting from silica gel and C-18 within the cartridges. Therefore, we suggest that the users of the cartridges treat them before use for this kind of analysis.

IMPACT

Because water is essential for our lives and its use is a necessity but not a luxury item, the quality and purity of drinking water is of utmost concern. The direct impact of the project would be considerable improvement of the health and well being of the rural residences of South Carolina. Economically, clean and safer drinking water on the one hand will dramatically reduce health care expenses as well as improve the working capacity and productivity of our citizens. Therefore, the overall impact of the project will be beneficial for the entire population of South Carolina and its government for having healthier and more productive citizens. The students that are involved in the project not only learn environmental problems, instrument methods, and procedures but also are receiving stipends to partially support their educational expenses. Also, the University is attracting better students because of a better equipped lab and research facility created for water quality research.

A greater impact from the project because of a better understanding of the problem is learning to cure and apply the procedure all over the world. The students that are involved with the project would definitely have an advantage in pursuing graduate level studies or finding better jobs after graduation than their cohorts.

PERSONNEL:

We had four undergraduate chemistry students involved with the research. Their work was quite helpful to the project and their personal growth. One of the students graduated in May 2005.

SCOPE OF FEDERAL FUNDS: US Department of Agriculture, Cooperative State Research Service, Evans-Allen

SCOPE OF IMPACT: Rural residences in South Carolina

Key Theme: Creating a Sustainable Environment – Chemical Standardization and Preparation of Biosubstances (1890)

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 the opsonic index, which means 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 methods for the biosubstances were developed using state-of-the-art instrumentation. In addition, the project has developed conditions for growing 2-4 liters scale *Echinacea* cell culture, isolating biosubstances from the cells, and standardizing them. The isolation of biosubstances from cell cultures has fewer complexities and the final products have consistent composition. Information on cultivation of the *Echinacea* will be disseminated to farmers.

IMPACT:

Small farmers will be 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 that they can 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 two undergraduate students working on the project. They both majored in physical sciences.

COLLABORATION: Clemson University Extension at Charleston, SC provided the Echinacea samples for the project. Further collaborative efforts involved two small limited resource farmers in Sumter, SC, who are experts in Organic Farming.

SCOPE OF FEDERAL FUNDS: US Department of Agriculture, Cooperative State Research Service, Evans-Allen

SCOPE OF IMPACT: State, National, and International

Key Theme: Creating Sustainable Environment

Syntheses In Solution And Supercritical CO₂, Solution Properties
And Thermal Characteristics Of Poly(Dialkylphenyl Acrylate)S
Project# SCX-420-24-04 Project Duration: January 2005 – January 2010

Polyacrylates are highly applicable polymers both in industry and health. The literature search shows that synthesis and characterization of poly(3,5-dimethylphenyl acrylate) and poly(3,5-ditertbutylphenyl acrylate) are not reported. The overall objective of the project is to prepare and report the properties of these polymers in bulk, solution, and carbon dioxide supercritical fluids.

The objective of the project is to prepare the above mentioned polymers, study their characteristics, train the students in the area of synthesis and characterization of the polymers,

and establish links of collaboration between 1890 Research and the industries around the area. The project is covering a vast area of science and technology related to health and environment, and to date one of the monomer and one polymer has been synthesized and partially characterized.

PERSONNEL: Three undergraduate students were involved in the research majoring in biological sciences.

SOURCE OF FEDERAL FUNDS: US Department of Agriculture, Cooperative State Research Service, Evans-Allen

SCOPE OF THE IMPACT: State and National

PROGRAM DURATION: January 16, 2005 to January 15, 2010

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

- a. Master Wildlifer was a short course presented by wildlife and natural resources experts. It was broadcast live over satellite and delivered to sites across the Southeastern US in seven three-hour weekly sessions from February 4 to March 18, 2003. 39 landowners graduated from the course. In addition, 72 Master Wildlifer/Master Naturalist programs and activities were conducted in 2003. 1,311 people completed these programs

In 2004, 18 Master Wildlifer/Master Naturalist programs and activities were reported. 520 people completed these programs.

In 2005, 101 programs were conducted, with 7,151 people participating.

- b. Impact
The participants in the Satellite course owned and managed 52,763 acres of land. Participants in the Master Satellite Course indicated that the knowledge gained would help them save \$99,000 and earn \$301,000 in the future when managing wildlife on their property. We now have the course available as online video along with the slides shown during the production.

Of the 1,311 persons completing programs in 2003, 1,055 reported an increase in knowledge. An additional 1,552 persons received information by phone, office, or farm visits. In 2004, of the 520 persons completing programs, 510 reported an increase in knowledge. 139 persons received information by phone, office, or farm visits in 2004.

Of the 7,151 persons completing programs in 2005, over 6,956 people increased knowledge and 3,866 planned to adopt practices.

In addition, the following impacts were made in research:

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. Conducted programs in 2003 and in 2004 such as Wildlife Planting Budgets, Alternative Income from Wildlife, and Growing Pines in Trying Times. Over 106 programs were conducted, with 4,926 people completing programs in 2003. In 2004, conducted 20 programs with 809 people participating. In 2005, 28 programs were conducted with 873 people participating.

b. Impacts:

Of the number of persons completing programs in 2003, 3,079 reported an increase in knowledge. Over 2,000 people received information through phone, office visits, and farm visits.

In 2004, 787 people of the 809 people completing programs reported that they gained knowledge. 595 reported that they either adopted or planned to adopt a practice. 230 persons received information by phone, office, or farm visits in 2004. Of the 873 people who participated in programs in 2005, 819 reported increased knowledge. Over 320 reported that they planned to adopt practices learned.

- 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. 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 2005. 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 712 days reported in this area. The total number of program contacts reported in this project was 5,371. The breakdown of these contacts is as follows: 3,470 white males, 1,312 white females, 421 black males, 142 black females, 17 classified as other males, and 9 classified as other females. From this group, a total of 47 were classified as limited resource. Accomplishments that were reported to the Clemson University Information Management System show 142 total educational programs and activities conducted in this project area. There were a total of 1,356 participants who completed these educational programs. Of those individuals completing these programs, 1,141 reported increased knowledge as a result of their participation. Of those participants who reported increased knowledge, 339 indicated that they planned to adopt the recommended practices while 57 reported that they actually adopted or increased the use of recommended practices as a result of the programs. There were 52 newsletters or trade journal articles prepared. There were also 2,071 non-program contacts through telephone calls and office visits. There were 40 joint educational efforts with industry, state or federal agencies and/or trade associations and 24 joint educational efforts with other agencies conducting certification or vocational training.

Impacts: Master Gardener Education and Impact

There was a total of 801 days reported in this area. The total number of program contacts reported in this project was 11,331. The breakdown of these contacts is as follows: 3,455 white males, 7,389 white females, 144 black males, 285 black females, 32 classified as other males, and 26 classified as other females. From this group, a total of 6 were classified as limited resource. Accomplishments that were reported to the Clemson University Information Management System show 368 total educational programs and

activities conducted in this project area. There were a total of 6,505 participants who completed these educational programs. Of those individuals completing these programs, 4,972 reported increased knowledge as a result of their participation. Of those participants who reported increased knowledge, 1,757 indicated that they planned to adopt the recommended practices while 157 reported that they actually adopted or increased the use of recommended practices as a result of the programs.

There were 2,518 Master Gardeners conducting 893 programs and activities such as oral presentations, newsletters, radio programs, and TV appearances. These trained Master Gardeners contacted 41,557 individuals and contributed 39,613 hours of service. Master Gardener volunteers contributed 152,555 miles of travel. This year, 1,209 residents completed the requirements to become a SC Master Gardener.

Impacts: Consumer Education in Environmental Horticulture

There was a total of 2,989 days reported in this area. The total number of program contacts reported in this project was 48,804. The breakdown of these contacts is as follows: 19,583 white males, 24,094 white females, 2,153 black males, 2,347 black females, 312 classified as other males, and 315 classified as other females. From this group, a total of 136 were classified as limited resource. Accomplishments that were reported to the Clemson University Information Management System show 1,094 total educational programs and activities conducted in this project area. There were a total of 8,319 participants who completed these educational programs. Of those individuals completing these programs, 7,131 reported increased knowledge as a result of their participation. Of those participants who reported increased knowledge, 3,219 indicated that they planned to adopt the recommended practices while 66 reported that they actually adopted or increased the use of recommended practices as a result of the programs. There were 510 mass media activities reported.

In addition, there were 32,478 non-program contacts through telephone calls and office visits. Consumer received additional information through 4,527 visits to demonstration sites, 27,276 telephone calls to the Home & Garden Information Center and the Urban Horticulture Center, and 19,343,859 visits to university horticulture websites.

There was a total of 4,502 days reported for Theme Area. The total number of program contacts reported in this initiative was 65,506. The breakdown of these contacts is as follows: 26,508 white males, 32,795 white females, 2,718 black males, 2,774 black females, 361 classified as other males, and 350 classified as other females. From this group, a total of 189 were classified as limited resource. Accomplishments that were reported to the Clemson University Information Management System show 1,604 total educational programs and activities conducted in this initiative. There were a total of 16,180 participants who completed these educational programs. Of those individuals completing these programs, 13,244 reported increased knowledge as a result of their participation. Of those participants who reported increased knowledge, 5,315 indicated that they planned to adopt the recommended practices. In addition, there were a total of

103,382 non-program consumer contacts through telephone calls and office visits and 19,343,859 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. A total of 395 staff member days were devoted to increasing the adoption of environmentally sound animal waste handling and utilization systems. Programs were presented to train producers of confined animals in manure management, and to certify that these producers have achieved the required level of training by testing knowledge levels. Several seminars and field days were developed and presented by the team to provide re-certification credits for poultry and swine producers. Educational programs were also provided for Extension educators, and agricultural professionals on composting of poultry litter and the development of demonstrations and case studies.

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.

- b. Impact - Increase the adoption of Environmentally Sound Animal Waste Handling and Utilization Practices.

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

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.

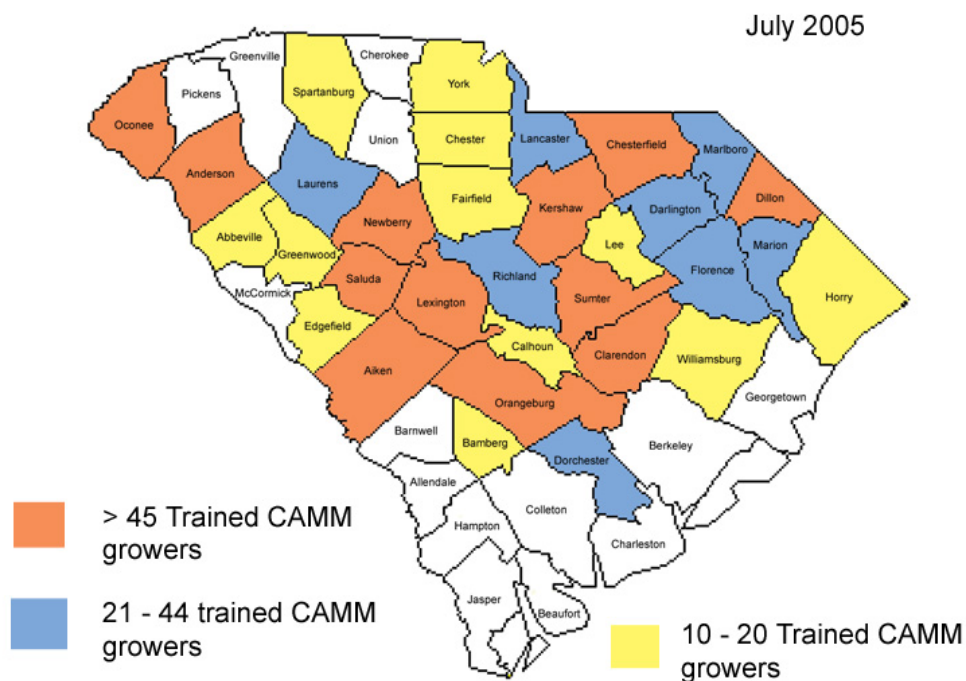


Figure 1. Distribution of livestock and poultry producers trained in the CAMM program by county.

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.

U.S. Patents Issued:

(divisional patent) System & Process for Treating Waste Water

Patents Issued

Process for Ozonating & Converting Organic Materials into Useful Products

System & Process for Treating Carbonaceous Wastes

Research Publications: 12

Extension Publications: 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. 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.

- 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. 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 federally funded and not included here.

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).

- 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. Many landowners fail to manage their forestland because they object to clear cutting or other conventional intensive practices that focus primarily on timber production. The

purpose of this project is to encourage these landowners to develop management plans by providing them with alternative silvicultural systems and methods that are suitable for their individual objectives. Alternative systems include uneven-age management, mixed pine/hardwood management and natural regeneration systems.

Educational efforts have been focused on both professional resource managers and landowners. Most landowners are unaware that alternative silvicultural systems are available and professional foresters are generally biased in favor of clear cutting and intensive management methods. Our objective is to provide landowners with an understanding of how these systems can be used to meet their desired management goals and to make trained, professional foresters available to service their needs. A proposal to fund intensive training on uneven-age management was completed in 2002 for funding in 2003 to expand formal training to meaningful levels within the state.

In 2003 a major, regional workshop on invasive species was delivered to more than 200 participants and reported under this project. Attendees received training on identification and control methods for the more than 30 problem plant species in the southeast. A South Carolina Exotic Pest Plant Control chapter was established as a result of the workshop.

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, 1005. 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.

b. Impact --

During the year 2000--01 most efforts on this project were conducted at the county level. Forty-eight programs and activities were reported by county agents. Approximately 700 people completed non-formal programs with approximately 80 % reporting increased knowledge of the subject. Sixteen percent have reported adopting or increasing use of practices discussed during the training.

County activity declined somewhat in 2002 with 16 educational programs delivered to a total of 509 people. Three hundred and four people reported increased knowledge and 30% or 153 landowners plan to adopt new management practices as a result of the programs. No formal, statewide training programs were conducted during the report period. The number of FTE's devoted to this project was 1.4.

During 2002-03 thirty-two activities were delivered to 977 people with 38 % reporting increased knowledge and 82 landowners adopting practices learned at the training sessions.

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.

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.

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.

Patent Disclosures:

*Utilization of Biomaterial waste from Biodiesel Production for Growth of Micro

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

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

- a. Longleaf pine is a highly desirable species because of its superior growth form, wood properties and the diversity of plant and animal species associated with the ecotype. Unfortunately, only a small fraction of the longleaf forest remains within its natural range. Renewed interest in the species has developed because of its ecological significance as well as financial reasons. Because of land ownership patterns, the majority of longleaf restoration efforts will require regeneration on non-industrial private lands. The objective of this project is to provide landowners and professional foresters with background and technical information necessary to expand longleaf production within its natural range.

In 2002-03 a proposal, “Low-Country Forest Conservation Partnership”, was developed and funded through the Doris Duke Foundation. The objective of the project is to protect and sustain endangered forests (much of which is of longleaf ecotype) in the South Carolina low-country. The project will cover an area of 2.9 million acres and will be funded with a total of \$4 million of which \$685,000 is targeted for outreach programs.

In 2005 this area of work represented approximately 30% of team effort (includes both the longleaf pine and Low-country Conservation Initiative). The program reached 525 landowners involved with Restoration and Management of Longleaf Pine and 1,674 landowners that participated in the Low-Country Conservation Initiative. Of the 2,199 landowners, approximately 8% were limited resource. Contacts under the Longleaf Pine program resulted from 5 educational programs and informal programming consisting of phone calls, farm visits and other local assistance. The Low-country Conservation Initiative conducted 15 formal educational programs.

- b. Impact
A total of 17 activities and programs were reported by county agents in 2000-01. These included, but were not limited to a workshop in Columbia, SC – “Restoring Longleaf Pine in the Sandhills”. The workshop was attended by 84 foresters and landowners. Altogether, a total of 832 people completed non-formal educational programs on Longleaf Pine. Approximately 70 % reported increased knowledge as a result of the activities and programs and 28% indicated that they have or will adopt practices discussed during the training. Approximately 8,000 additional acres of longleaf pine were planted during the 2000 – 01 reporting period. The number of FTE’s devoted to this project was 0.4.

In 2001-02, fifteen programs were delivered to a total of 219 landowners. Eighty % of participants reported increased knowledge of longleaf pine silviculture and 32 % plan to adopt practices. During the year 3,000 acres of additional longleaf pine regeneration were attributed to extension programming.

In 2002-03, thirteen programs were delivered to 236 landowners with 116 people increased knowledge from the programs. Twenty-eight landowners reported potential earnings of \$275,000 from information gained at pine thinning training sessions.

Activities under the Low-country Conservation project for 2004 are described in the following list of accomplishments as provided in the first annual report:

	First Year Goal	Actual
Prospective landowners identified:	200	670
Landowners determined to be interested:	100	310
Landowners receive conservation forestry education:	50	72
Landowners developing a written conservation forestry mgt plan:	10	12
Landowners are implementing conservation management:	5	9
Demonstrations under development:	4	3
Loggers exposed to conservation forestry practices:	20	???
Foresters exposed to conservation forestry practices	40	152
Acres managed with conservation forestry practices:	1000	7300

- Fire ecology graduate student started in August; economics graduate student starts in January.
- Companion project for \$176,000 funded by US Fish & Wildlife to implement conservation forestry practices awarded in September.
- Development of a multipurpose low country Forest web site for the public and for partners.
- Development and initiation of access data base to inform participants and track progress.
- Eight grant partners visit Anderson-Tully Company for tour of bottomland hardwood operations and discussion of how they manage bottomland hardwood forests.
- Five grant partners and six landowners and landowner representatives visited Joseph W. Jones Ecological Research Center to tour ecological longleaf pine management on area properties and to discuss the Stoddard-Neel system.
- Developed pre-participation landowner form to establish baseline for future evaluations.
- Selection of Deer Hill, Ravenwood, and Rose Hill properties as bottomland hardwood demonstration sites. The evaluation of sites by Dr. John Hodges of Mississippi State University.

- Selection of Quinby, Deer Hill, Ravenwood and Cypress Bay properties as upland pine demonstration sites. McIntyre and Mitchell of the Joseph W. Jones Ecological Research Center have developed a management plan for the Quinby property.
- Two workshops, one on bottomland hardwoods (supported by a SC Forest Stewardship Grant) and another on forested wetlands held for resource professionals.
- Three programs held to acquaint landowners with conservation forestry practices.
- Newspaper releases, a meeting poster, partner newsletters such as the LOLT Landscape Legacy (Circulation 800) and the CU Extension Answers (Circulation 8000) and a brochure are being used to generate interest.
- Personal contacts of over 1000 landowners and 200 natural resource professions concerning the Lowcountry Forest Conservation Partnership conservation forestry initiatives.
- Filmed Leon Neel at various sites discussing the Stoddard-Neel management system.

In 2004 most impacts on longleaf pine restoration are related to landowner requests for technical information where 278 landowner contacts are reported. Formal evaluations were not reported. Impacts of the Low-country Conservation program have not been reported as the majority of efforts were directed at organization and planning.

In 2005 the five programs under Longleaf Pine Management reached 335 landowners with 99% reporting increased knowledge of the subject matter and 92 % that plan to adopt new practices.

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. The Master Tree Farmer/Master Woodland Owner program provides intensive forestry and wildlife training to landowners in return for 25 hours of volunteer time promoting forestry and the Tree Farm program in South Carolina. In 2000 - 2001 Master Tree Farmer continued as a flagship program for Extension Forest Resources. In Spring of 2001 the program was broadcast from Clemson University via videoconference to 14 states and 132 down-link sites across the south and to 4 states in the fall. Graduates received a total of 28 contact hours of instruction in forestry topics such as Forestry as an Investment, Pine Management, Hardwood Management, Marketing and Harvesting, and Wildlife Management.

Master Tree Farmer II, a more advanced level of training than MTF I, was delivered to 1700 attendees in 10 states in 2002. Twelve county programs were conducted in 2003, reaching 1,329 persons. Master Tree Farmer graduates attended a variety of related trainings, tours and landowner association meetings.

A seven-week Master Tree Farmer introductory short course in forest management is currently being broadcast live from Clemson University and will continue on through March 16. Although primarily designed for forest landowners, the course also attracted County agents, forestry professionals, prospective forest owners, heirs of landowners and many others. The program is being delivered to nine states and approximately 1,500 participants.

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

- b. Impact --
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 number of FTE's devoted to this project was 0.6. 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 with 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.

The number of impacted forest acres was 4,580 for programs conducted in 2003. Thirteen county programs were conducted in 2003-04 with 138 people completing programs. 116 of the 138 reported knowledge gained and 102 reported adopting a practice learned. The number of impacted forest acres was 4,250 for programs conducted in 2004. Example of programs included:

- Low country Master Tree Farmer Tour with 34 participating. All reported an increase in knowledge and planned on implementing practices learned. Participants owned more than 10,800 acres of land.
- 15 people participated in a Master Tree Farmer course, who owned a total of 3,146 acres of land, of which 2,750 acres were forest land. Participants indicated that the knowledge gained would help them save \$158,000 and earn \$332,000 in future activities.

In 2005:

- 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

Key Theme: Creating Sustainable Environment Forest Resource Management

- a. The objectives of this project are to: (1) Encourage landowners who sell timber to reforest following harvest; (2) inform landowners of the economic and environmental benefits of using Best Management Practices (BMP's) in all forest management operations; (3) develop and conduct training programs that improve the professionalism of logging and other timber operations businesses, and that promote sustainable forestry principles; and (4) work with established groups within the forestry community to support and promote appropriate training and outreach programs related to sustainable forest management.

Some significant activities for 2001 included: (1) continued implementation of the South Carolina Timber Operations Professional (TOP) training program, (2) Initiation of a Streamside Management Zone training program, and (3) completion of the publications – *U.S. Forests Facts & Figures 2001* and *Historical Overview of the Southern Forest Landscape and Associated Resources*.

In 2002, twenty-one, three-day TOP programs were conducted. In addition, 105 programs were reported at the county level.

In 2003 17 TOP programs were delivered to 598 loggers. Other non-TOP activities included programs on pine straw management, pine thinning, and wood biomass recovery from harvested sites.

In 2004 16 TOP programs were delivered to 396 loggers.

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.

- b. Impact --
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.

The following impacts were reported for 2001-02:

1. More than 700 loggers, foresters, contractors and landowners earned TOP certificates.
2. The number of people completing educational programs was 1,869.
3. The number reporting increased knowledge was 1,307.
4. Twenty-nine percent of landowners have adopted practices due to training.
5. Ninety-five percent of all wood harvested and delivered was done so by loggers trained through this program.
6. Best Management Practices compliance in South Carolina is reported at 93%.

Impacts for 2003 are as follows:

1. TOP programs were delivered to 598 loggers, foresters and contractors.
2. Total number of people (including TOP) completing programs was 2,899.
3. Number of people reporting increased knowledge was 2,746.
4. Number of people adopting practices was 1,559.
5. Ninety-eight percent of wood delivered was delivered by loggers that have completed the TOP training.
6. Attendees of non-TOP programs reported savings of \$818,000 and potential earnings of \$1,462,000 from knowledge gained at the programs.

Although evaluations for 2004 are incomplete, the overall impact of the TOP programs from 2000 to 2003 has shown an increase in Best Management Compliance from 91% to 94%.

Other non-TOP activities included forestry landowner association meetings work with Horry Georgetown Technical College student monitoring trees and soil in burning plots, and the SC Tree Farmer of the Year Tour. In total, these meetings were attended by approximately 250 landowners who impact management of over 500,000 acres of forest land. Counties reported conducting 61 programs with 1,193 persons completing programs. Of those completing programs 885 gained knowledge and 451 reported adopting practices learned.

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 Development

Economic Development

Key Theme - Community Leadership and Economic Development-Community Service

- a. 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 -

A total of approximately 4,500 local leaders have participated in leadership programs sponsored and supported by Palmetto Leadership during the past 14 years. The program has been offered in 40 of South Carolina's 46 counties. Virtually all "less-developed" counties have had the program. During the past year, 15 programs were offered in 14 counties. Palmetto Leadership graduated 268 leaders in these counties: Allendale, Anderson (Pendleton), Bamberg, Barnwell, Beaufort (Beaufort, Bluffton), Berkeley, Colleton, Dorchester, Fairfield, Jasper, Lexington, Marion, Marlboro, Pickens, and Williamsburg.

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.

2,296 persons participated in 85 Economic Development programs. The number of participants reporting increased knowledge was 1,102. The number of individuals planning to adopt or increase the use of suggested practices was 707.

1,477 persons participated in 126 Public Issues Education programs. The number of participants reporting increased knowledge was 847. The number of individuals planning to adopt or increase the use of suggested practices was 344.

3,726 persons participated in 388 Community Enhancement and Improvement programs. The number of participants reporting increased knowledge was 2,002. The number of individuals planning to adopt or increase the use of suggested practices was 797.

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

d. Scope of Impact – State

Key Theme - Community Leadership and Economic Development Leadership Development

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 1,483. The number of individuals completing leadership programs who collaborated with others in the region to address an issue or concern was 496. 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 204.

An additional 502 youth were engaged in Intergenerational-Service Learning or community development projects.

Four Youth Leadership Dropout Prevention Programs were held with 44 persons participating.

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.
- 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 11th graders. These participants planted flowers for the Department of Parks, Recreation, and Tourism.
- Coordinated the Junior Palmetto Leadership program for 24 10th 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 -Economic Development -Promoting Business Programs

- a. 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 –

To date the most successful BR&E Visitation Program was conducted in Beaufort County during the past four years. The findings of this study continue to be a benchmark for planning in the county and region. The Beaufort County Council, the Economic Development Board of Beaufort County, and the Palmetto Electric Cooperative provided significant financial support to the program. The report has influenced public policy and the public officials' agenda. Media exposure of the BR&E Report provided an important role in educating public officials and the public about business development opportunities and obstacles in Beaufort County. The report is based on interviews and survey responses from 66 randomly selected business operators in the county. The businesses are engaged in building, manufacturing, and tourism industries. The other key program in BR&E was the Barnwell County study using focus groups with a cross-section of businesses, job-related agencies, educational institutions, and job displaced personnel. Loss of staff at the state level has made it difficult to continue support for the program's research and report preparation phase.

1. There were 85 economic development programs reported for the year.
2. The number of individuals completing education programs was 2,296. Of this number, 1,102 individuals reported increased knowledge. The number of individuals who adopted or planned to adopt economic development practices was 878.
3. The number of individuals who received information through "non-program" contacts such as telephone, office and site visits was 1,104.
4. The number of community leaders who participated in BR&E task groups was 373.
5. The number of collaborative efforts to enhance BR&E totaled 48 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.
7. Conducted Fiscal Impact Assessment for Lancaster County.
8. Conducted Tourism Forum in Richland County.

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

d. Scope of Impact - State

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

- a. 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 126 during the past fiscal year.

The number of individuals completing public issues education programs was 1,477, of which 847 reported increased knowledge. Of those who increased knowledge, 344 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 437.

The number of facilitated public meetings addressing public issues was 13.

The number of public appearances used to promote understanding of public issues was 32. (Programs included a health care issues forum, Collaborative Colloquium,

Globalization issue during College and University Presidents Annual Meeting, Pathways to Prosperity Health Care, American Immigration, Darlington Downtown Development and revitalization, Chesterfield County Stop the Violence Project)

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

9 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. 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 388.

The number of individuals completing education programs in this area was 3,726.

Of this number, 2,002 reported increased knowledge.

The number of individuals who adopted or planned to adopt practices associated with community enhancement and improvement was 797. Over 731 reported that they adopted a practice learned.

The number of individuals who received information through “non-program” contacts such as telephone, office or site visits was 1,120.

443 groups or agencies reported collaborating on a task.

The number of individuals completing SC Design Arts Partnership program was 190.

The amount of funds raised to support local programs and collaborative efforts was \$526,200 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.

Technical Contributions: 8

- 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)

- a. This program addresses the needs of citizens wishing to start or expand small businesses and cooperatives. We provide assistance to small businesses and cooperatives in the areas of marketing, analysis, development, operations, customer service, finance, planning, and international expansion. We develop and expand local resources, and link local education institutions, government, and private businesses to accomplish its 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 our small business and cooperative community.
- b. Impact: Bringing about significant, widespread change in rural South Carolina requires the dedication of many organizations. That's 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 three hundred four (304) participants in the business development program, (41) were small business owners who acknowledged that the program really benefited them and will help them be more effective business owners. The remaining two hundred sixty three (263)

were aspiring business owners and they have an increased knowledge base of business ownership.

1. Clients Counseled	153
2. Field Trips	126
3. Business Plans	15
4. Loan Applications	7
5. Loans Funded	4
6. Workshops & Seminars	18

c. Source of Funds: Smith-Lever & USDA Rural Business Service

d. Scope of Impact: State

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

a. The Entrepreneurship Expo provided high school seniors the opportunity to learn about the rewards of business ownership. The goal is 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 teaches young people about the principles of entrepreneurship through workshops, competitions, and rewards.

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

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 are given. Competition participants had the opportunity to go on the South Carolina State Business Venture Trip, which features visits to major businesses in South Carolina like the Charleston Port Authority and the BMW Plant in Greenville, SC.

b. Impact: Entrepreneurship Expo realized the following results:

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

- c. Source of Funds: Smith Lever & USDA Rural Business Service
- d. Scope of Impact: State

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

- a. This program provides a stand-alone, hands-on introduction to personal computer hardware and operating systems for:
 - 1. Beginning computer classes for professionals,
 - 2. Improving the chance for success in an educational environment using computers,
 - 3. Improving chances for success in the workplace as well as at home by learning basic computer functions.

Computer literacy classes are taught at designated locations. The classes include training in the following areas: computers, keyboarding, Internet and E-mail. The staff assists in setting up E-mail accounts based on their respective needs for personal or business solutions. Computer literacy training is offered to ensure continuous education and promote economic growth.

After class completion, persons without access to computers will be routed to the community-based organizations where computers are accessible. Partnerships will be 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 access will be afforded to participants for business and general education information.

Computing fundamentals include hardware, software, Internet, E-mail, search engines, and Windows operating system. Key applications will focus on word processing and spreadsheets with minor information regarding databases and presentation software.

- b. Impact: There were a total of 102 students to attend the 2005 computer sessions. The majority of the students were excited about what they learned. Participants had renewed confidence in themselves for what they were able to accomplish in the class. This also expanded the possibilities of what could be accomplished in the future. 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.

- c. Source of Funds: Smith Lever & USDA Rural Business Service
- d. Scope of Impact: State

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

Understanding the Effects of Citizen Participation and Community Development in Selected Rural and Urban Cites in South Carolina

This research project is designed to answer the following questions: What type of community development project is most beneficial 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? The study will add significantly to the understanding of community development. First, this study explores six cities over a period ranging from 1970 to the present. The length of time seems adequate to assess possible changes in community development activities, both short-term and long-term, and the extent to which there are patterns and consistencies in community development policies in South Carolina. Secondly, by investigating 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 activities. This approach will provide a comprehensive understanding of community development in South Carolina.

This study has five objectives: Place South Carolina's community development activities within the broader context of community development in the South; obtain current data on community development activities regarding practices, experiences, and policies of each city selected for this study since 1970; compare and examine objective indicators of community development in all neighborhoods in each city selected for the study since 1970; examine the relationship between the views, preferences, priorities and practices of public officials and community development activists; the cities' political structure, citizen participation, and community development policies; determine the extent to which low and moderate income neighborhoods benefit from local community development policies and the Community Development Block Grant program and the extent to which they create jobs for low and moderate income people.

IMPACT:

Several major tasks have been completed or are in progress to determine the extent to which low and moderate income individuals and communities benefit from community development. We have acquired and created tables of demographic and community development data, i.e. employment statistics, per capita income, racial composition, age of population, housing stock, poverty level, etc. for each city by census blocks. A database of elected officials and Neighborhood Association Presidents has been developed for each of the targeted cities since 1970. Data on community development issues and community leaders have been prepared for transfer to an NVIVO database. Minutes of city council meetings from 1970 to 2005 are being collected and converted to a form suitable for importing into NVIVO. A NVIVO database has been created of city council meeting minutes. The documents contained in this database are being coded to facilitate future analysis of data. Newspaper articles have been collected and coded to ascertain community development issues, controversies, and community leaders' positions and reactions to various community development projects. A database of the distribution of community development block grant funds has been created for each city. Matching funded projects with the neighborhoods has begun in which they are located. To

determine the relationship between community development and citizen participation, databases of voter registration and participation have been created for each city by precinct from 1970 to 2004. Vote totals for individual candidates have been obtained from city or county election commissions, city council meeting minutes, or newspaper articles for most municipal elections between 1970 and 2004 in the cities under study. The totals have been added to the election tables.

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. By looking at various community development projects and activities in different cities, this 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 has policy implications for the 1890 Extension Program. The results can assist 1890 Extension in its community development efforts.

PERSONNEL:

There were two research assistants and four undergraduate students who majored in political science and English. Two students graduated in Spring, 2005.

SCOPE OF FEDERAL FUNDS: US Department of Agriculture, Cooperative State Research Service, Evans-Allen

SCOPE OF IMPACT: Rural residences of South Carolina

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

Assessing Existing Social and Educational Programs for the Hispanic Population in South Carolina

Project # SCX-824-05-03 Program Duration: October 2003 – September 2007

The Hispanic population increase accounted for approximately 35 percent of the entire increase in the Southern Region from 1993 to 2003, according to the Southern Region Education Board. Whereas, South Carolina's increase of Hispanics accounted for 15 percent, of the 116,500 Hispanics who lived in South Carolina in 2003. 80,500 (69%) arrived since 1993. Seeing how the U.S. Census Bureau 2000, indicated an influx of 2.4% increase within a ten year span of Hispanic immigrants since 1990, South Carolina has had to adjust and rethink its strategies toward providing social and educational services to meet the growing needs of their Hispanic population. Therefore, the objective focused on for the present stage of the project is to assess existing social services programs (*Food Stamp, Medicaid, and TANF*) and the use of the programs by the Hispanic population in selected counties in South Carolina, and determine the impact on the programs. The overall goal of the project is to develop a data base and profile on Hispanics in the state of South Carolina and expand the information for developing the human capital and leadership in the Hispanic community.

Therefore, there were three objectives of the project:

1. To explore patterns of adaptation and community integration of new immigrants of Hispanic origin in selected counties in South Carolina.
2. To assess existing social services programs (*Food Stamp, Medicaid, and TANF*) and the use of the programs by the Hispanic population in selected counties in South Carolina, and determine the impact on the programs.
3. To assess existing educational services program (*GED, ESL*) and the use of the programs by the Hispanic population in selected counties in South Carolina and determine the impact on the programs.

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

IMPACT:

This project has the potential to produce tangible evidence based on research of the following nature: (1) create a database and profiles of the tremendous influx of Hispanics immigrating into South Carolina since 2000; (2) provide a vehicle for state agencies: South Carolina Department of Social Services (*DSS*), Department of Health and Human Services (*DHHS*), and South Carolina Department of Education offices (*Adult Continuing Education*) to benchmark their progress; (3) foster new policies to develop appropriate measures in meeting the needs of the Hispanic population; (4) provide graphical data information for the four notable regions (*Piedmont, Midlands, Pee-Dee, and Coastal*) as it relates to the Social/Educational Services the selected Hispanic population is utilizing; and (5) assist in connecting the SCSU-1890 Extension Programs to the selected Hispanic communities within the seven 1890 Clusters to develop their human capital and leadership capacity.

(1) The research objectives are as follow: Created a profile of the tremendous influx of Hispanics immigrating into South Carolina since 2000; (2) Developed graphical data utilizing (*Descriptive & Inferential Statistics*) relative to Temporary Assistance of Needy Families and the Food Stamp Program for Hispanics in the 23 selected counties; (3) Created a GIS graphical State map displaying the Hispanic Populations in 1890 Research and Extension Program Clusters.

Paper Presentations

- Joint AEA/ARD meeting in New Orleans, entitled “*Assessing Temporary Assistance of Needed Families Program, in Selected Counties in South Carolina,*” New Orleans, June 19-22, 2005.
- 63rd Annual Professional Agricultural Worker Conference (PAWC): Celebrating and Examining the Coming Together of Cultures, entitled “*Assessing Food Stamps Program for Hispanics in South Carolina in Selected Counties in South Carolina*” ~ Tuskegee University, Mathis, C.C. & Choudhari, S.R., December 4-6, 2005.

COLLABORATION: State of South Carolina Commission of Minority Affairs; Ms. Lee McElveen (Hispanic Coordinator for the State of SC); Dr. Jose Riveria (Migrant/Seasonal Farm Outreach Worker of Orangeburg SC, Family Health Center); Dr. Refugio I. Rochin (Executive Director for SACNAS, Society for Advancement of Chicanos/Latinos and Native Americans in Science).

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

SCOPE OF THE IMPACT: State and National

Key Theme: Rural Community Economic Development

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 Program Duration: January 2005 – January 2008

The project examines bankruptcy filings of individuals who seek relief from harassment by their creditors as they work out a court approved schedule of payment of their debts. During this time period, we have been gathering bankruptcy data from the National Archives in Atlanta and from sub-districts in South Carolina. Cases which are more than three years old are sent to the archives for preservation and the more recent cases are stored in Columbia, which is the head office of the District of South Carolina. The district's authority to deal with such cases flows from the United States Bankruptcy Code. The Chapter 13 portion of the Code stipulates that individuals with verifiable income who owe substantial debt and cannot keep up with payments can petition the Bankruptcy Court for relief. They would not be seeking debt forgiveness. Instead, they would be petitioning the court to help them work out a realistic payment schedule based on their amount of disposable income. In return, the court issues an order prohibiting creditors from demanding direct debt repayment. So the debtors are protected from harassment by their creditors. If the debtor's petition is granted, he or she would pay a court determined amount to the court which in turn, pays the creditor or creditors. In extreme cases when debtors cannot pay, the court may allow them to file for Chapter 7 reserved for total bankruptcy. In that case the court grants the debtor total relief and debt owed. In this research we are trying to gather bankruptcy data and analyze to see what happened after filing. In some cases the filer is denied relief and must repay according to the original terms agreed upon by the debtor and creditor. If the petition succeeds, the debtor will be granted relief based on the severity of the case. In such cases, the debtors repay an approved amount following an approved repayment schedule or, in extreme cases, the debt is canceled altogether.

IMPACT:

Since the project is relatively new, emphasis is on collection of data from both the archives and within the district. But from time to time some information will be made available to interested parties through published reports and journals. In the end, this information will be available to Small Business Administration Centers in South Carolina. The categories of filings reveal the number of bankruptcy filings in the state and the most likely causes of failure to cope with debt.

At the end of the project data will be analyzed to see if there are any demographic characteristics of the filers. It will also be possible to gauge a connection between bankruptcy filing and forms of credit. So far it seems that it will be very difficult if not impossible to identify filers' ethnic type or to tie failure to situations such as divorce, loss of job or some disaster. This problem can be dealt with by intensive surveying of filers whose addresses can be traced.

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

SCOPE OF THE IMPACT:

Before its completion, no impact is expected since the data is currently being gathered from various locations. After the data have been analyzed and its characteristics studied, it will be possible to inform government agencies, especially the Small Business Administrations at the state level. Anyone who claims to be a stake holder of this project can get the information. Furthermore, this type of information can be used as real life examples in finance and management courses in colleges. These statistics would be original and fresh. Not only that, it is rare if at all that textbooks incorporate cases on Chapter 7 or 13 Bankruptcies. Future plans include writing a similar project covering similar concerns, except that it will address the new United States Bankruptcy Code. Effective from Monday October 17th 2005, Congress enacted new and much more stringent bankruptcy laws. The new laws are expected to inflict a lot financial pain to all filers and low income people, especially minorities, are expected to be hit hardest.

Key Theme: Rural Community Economic Development

THE IMPACT OF QUALITY OF LIFE AND BUSINESS CLIMATE VARIABLES ON DEVELOPMENT AND EMPLOYMENT GROWTH IN SOUTH CAROLINA

Project # SCX-522-08-01 Program 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 results of the study will be helpful for 1890 Research and Extension Program, local government officials, community leaders, and extension agents who are involved in promoting economic development and growth within the urban and rural communities of South Carolina. From a policy-making standpoint, economic development of the rural and urban communities may require a mix of measures that would impact fiscal conditions, market environment, cost of inputs, and the quality of life within communities.

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

PAPERS PRESENTED OR PUBLISHED:

1. Mustafa and Raghav Sundaresh (Graduate Student) “Quality of life and economic growth rates: an empirical study”, presented at the 32nd Annual Conference of Academy of Economics and Finance, February 9-12, 2005.
2. Muhammad Mustafa “Poverty in metropolitan and non-metropolitan areas: Evidence from South Carolina”, presented at the 2004 Annual Conference of South Western Society of Economics, Orlando, March 4, 2004.
3. Mustafa, M. and Raghav, S., “Quality of Life and Economic Growth Rates: An Empirical Study”, Academy of Economics and Finance, Myrtle Beach, SC, February 9- 12th, 2005.

SOURCE OF FEDERAL FUNDS: US Department of Agriculture, Cooperative State Research Service, Evans-Allen

SCOPE OF THE IMPACT: South Carolina

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

a. 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 847 days planned in this project with 1,256 days reported. A total of 3,133 white males, 3,962 white females, 4,017 black males, 4,784 black females, 355 other males, 475 other females, and 1,181 limited resource youth were contacted through this project. There were 625 activities and programs conducted in this project with 12,610 youth completing these non-formal education programs, 8,699 of these youth reported an increase in knowledge with 1,055 youth reported adopting or increasing uses of practices, and 5,149 planned to adopt practices. A total of 1,398 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 on October 30. 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 (Family & Consumer Sciences)

- a. Strong families provide children with a sense of belonging and the security of being loved and nurtured. Children from families without this strength and security often are at risk. Although the 4-H program does not seek to replace the influence and purpose of the family unit, it offers youth the opportunity to become a part of an organization where knowledge and skills can be developed for lifelong learning. The 4-H program seeks to support the family unit and strengthen the individual child, building upon the assets that are present. County Extension agents receiving training through the Building Family Strengths Program utilize their training to reach and help individual youth and their families.
- b. Impact -
There were 280 days planned for this project and 348 days reported. A total of 517 white males, 1,365 white females, 922 black males, 1,411 black females, 10 other males, 21 other females and 930 limited resource youth were contacted through efforts made in this project area. A total of 92 volunteers were also reported as participating in this project area. There were 169 programs and activities conducted with 2,957 youth completing non-formal educational programs. Of those youth participating, 2,453 reported an increase in knowledge while 215 adopted or increased uses of practices and 1,476 planned to adopt practices. There were 35 youth participating in Consumer Judging programs, 67 in Consumer Education classes, and 1,013 in clothing and textiles education classes.
- c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact - State

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

a. 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 978 days planned and 1,518 reported for this project area. A total of 14,104 white males, 15,534 white females, 5,838 black males, 5,898 black females, 443 other males, 319 other females and including 934 limited resource youth were contacted through efforts made in this project area. A total of 916 volunteers participated in this project area. There were 714 activities and programs conducted with 23,931 youth completing these non-formal education programs. Of those youth completing the programs 18,877 youth reported increased knowledge while 1,564 youth reported adopting or increasing uses of practices. An additional 8,258 youth completing programs in plant/animal science indicated they plan to adopt recommended practices. A total of 6,627 youth participated in 4-H animal projects while 6,937 youth participated in plant projects.

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. 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 725 days planned and 792 reported in this project area. A total of 4,545 white males, 3,276 white females, 1,131 black males, 1,147 black females, 157 other males, 158 other females and including 612 limited resource youth were contacted through efforts made in this project area. There were also 231 reported as volunteers. There were a total of 222 activities and programs conducted with 7,207 completing non-formal education programs. Of those youth who completed the programs, 5,760 reported increase in knowledge and 160 adopting or increasing uses of practices. An additional 1,865 individuals plan to adopt recommended practices. In addition there were 2,358 youth reported in county natural resources programs, 262 who participated in shooting sports clubs, and 252 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. 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 592 days planned and 707 days reported in this project area. A total of 2,458 white males, 2,576 white females, 1,984 black males, 2,281 black females, 154 other males, 113 other females and including 1,141 limited resource youth were contacted through efforts made in this project area. There were 253 activities and programs conducted with 7,084 youth who completed these non-formal education programs. Of these youth who completed the programs 4,186 youth reported increase knowledge and 570 youth reported adopting or increasing uses of practices. There were also 1,930 youth who completed programs and plan to adopt the recommended practices. A total of 149 volunteers 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. 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 480 programs conducted in this project, with 9,425 youth completing these non-formal educational programs. Of those youth completing the programs, 6,899 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.

The Hunley Park Elem. 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. 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 72 days planned in this project with 10 days reported. A total of 17 white males, 17 white females, 7 black males, 17 black females, 0 other males, 0 other females and 0 limited resource youth were contacted through this project area. There were a total of 3 activities and programs conducted in this project area with 4 youth completing these programs. Of those youth participating, all reported an increase in knowledge.
- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact – State

Key Theme - Youth Development (Teaching KATE)

- a. Some children never have the opportunity to explore the natural world around them. Experiencing the environment is often done through textbooks and other formal educational methods. Taking kids into the natural world to explore resources is the best way to teach them about the environment. Experiential learning is the hallmark of all 4-H programs and Teaching KATE (Kids About The Environment) is no exception.
- b. Impact -
There were 24 days planned and 19 days reported for this project area. A total of 624 white males, 831 white females, 439642 black males, 372 black females, 30 other males, and 3 other females were contacted through this program area. There were 17 activities and programs conducted with 741 completing non-formal education programs. Of those youth who completed the programs 0 youth reported increase in knowledge and 0 youth reported adopting or increasing uses of practices. There were also 0 who plan to adopt recommended practices. In addition, 0 people were reached in promotion effort of Teaching KATE and 0 teacher received Teaching KATE lesson plans.
- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact – State

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

a. 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 165 days planned and 179 days reported for this project area. A total of 379 white males, 442 white females, 633 black males, 760 black females, 15 other males, and 12 other females were contacted through this program area. There were 272 activities and programs conducted with 1,986 completing education programs. Of those youth who completed the programs 1,709 youth reported increase in knowledge and 136 youth reported adopting or increasing uses of practices. There were also 721 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. 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 780 days planned and 1,226.5 days reported for this project area. A total of 1,735 white males, 3,321 white females, 617 black males, 1,687 black females, 8 other males, and 14 other females were contacted through this program area. 66 were a limited resource audience. There were 283 activities and programs conducted with 1,910 completing education programs. Of those who completed the programs 1,343 reported increase in knowledge and 159 reported adopting or increasing uses of practices. There were also 640 who plan to adopt recommended practices.

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

e. Scope of Impact – State

Key Theme: Youth Development -Youth at Risk Programs

a. 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 800 days reported for this project area and a total of 43,638 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. 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 286 days reported for this project area. A total of 9,084 contacts were made through this program area. A total of 65 educational programs were conducted reaching 566 people who attended overnight family development programs, 89 attending Elderhostel programs, and 6,018 attending athletic training camps.
- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact - State

Key Theme: Youth Development -Special Needs Programs

- a. 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 89 days reported for this project area. A total of 2,688 contacts were made through this program area. A total of 9 educational programs were conducted reaching 557 people with special needs 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. 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 2,522 days reported for this project area. A total of 43,856 contacts were made through this program area. A total of 330 educational programs were conducted with 6,500 youth participating in in-school programs conducted by staff. Over 7,026 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. Society has undergone dramatic social, demographic and economic changes that have deeply affected individuals and families in this country. Extension will focus on strengthen individuals and families while addressing current issues facing children, youth and families across the lifecycle. 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. This Building Family Strengths program has been 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. The program has a developmentally appropriate curriculum designed to strengthen families. This Building Family Strengths program has been the basis for a four-year 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, Building Family Strengths has been identified by the CSREES Family Development/Resource Management base program team as a program of excellence. The program has been recognized by the National Association of Extension 4-H Agents as the national and regional winner for Excellence in Teamwork and received the Excellence in Teamwork award from the Alpha Chapter of Epsilon Sigma Phi and was selected as the 2003 winner of the SC Extension Teamwork Award. Utilizing the train-the-trainer model, this holistic approach to family programming has been successful in a variety of settings that include traditional classrooms, state youth services, county extension Family and Consumer Sciences and 4-H agents, student teacher training, and non-profit organizations.

b. Impact –

Examples include Strengthening Women workshop, Day Care Providers, Maternity Health Fairs, Community Youth Boards, Housing authorities, Character Education Course Planning, Pregnancy prevention, Junior Achievement, After School Enrichment Programs, Communities in Schools, 21st Century Coordinators, Department of Social Services, Conflict Resolution, Anger Management, and the SC Council on Aging. Throughout the year, many train-the-trainer workshops were conducted by state and county Extension faculty. The focus of the Building Family Strengths program this has been on curriculum development and training utilizing the train-the-trainer model. 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 after school 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 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. The current planning cycle focuses on marketing the revised Building Family Strengths curriculum and targeting later life development stages – Building Family Strengths for Later Life to address emerging family issues of baby boomers.

Building Family Strengths for Later Life

1.	Number of educational programs and activities conducted.	22
2.	Number of people completing educational programs.	529
3.	Number of people reporting increased knowledge.	350
4.	Number of people who plan to adopt practices.	190
5.	Number of people adopting practices.	111
6.	Number of people receiving information through “non-program” contacts such as telephone, office, and farm visits.	72
7.	Number reached through mass media.	20,000
8.	Number of people participating in Conflict Resolution/Anger Management programs.	70
9.	Number of people participating in Taking Charge in Challenging Times programs.	58

Building Family Strengths – A Youth Development Approach

1.	Number of educational programs and activities conducted.	92
2.	Number of people completing educational programs.	2,917
3.	Number of people reporting increased knowledge.	2,091
4.	Number of people who plan to adopt practices.	693
5.	Number of people adopting practices.	368
6.	Number of people receiving information through “non-program” contacts such as telephone, office, and farm visits.	116
7.	Number reached through mass media.	1,500
8.	Number of volunteer hours.	25
9.	Number of people participating in Conflict Resolution/Anger Management programs.	102
10.	Number of professionals participating in Train-the-Trainer programs.	

In February 2001 and 2005, National Strengthening Families and Youth Conferences were sponsored with over 160 participants across the US and Australia for professionals working with youth and families. Throughout the year, many train-the-trainer workshops were conducted by state and county Extension faculty. The third national conference, Strengthening Families, Youth and Communities is planned for February 2006.

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

Key Theme – Families – (Financial Management)

a. 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 47 days planned and 185 days reported in this project area equaling .8 FTE with a total of 1,126 contacts and 1,031 people participating in 39 educational programs and activities.

1. Number of educational programs and activities conducted.	39
2. Number of people completing educational programs.	1,031
3. Number of people reporting increased knowledge from the number completing educational programs.	645
4. Number of people receiving information through "non-program" contacts such as telephone, office, and farm visits. Do NOT use #7 to answer #1- #6.	85

Project 124 - Resource Management for Youth - There were 126 days planned and 118.5 days reported in this project area equaling .52 FTE with a total of 880 contacts, including 70 limited resource youth. There were 516 youth participating in 38 educational programs.

1. Number of educational programs and activities conducted.	38
2. Number of people completing educational programs.	516
3. Number of people reporting increased knowledge from the number completing educational programs.	448
4. Number of people who plan to adopt practices from the number of people who increased knowledge.	181
5. Number of people adopting practices from the number of people who increased knowledge.	22
6. Number of people (NO duplications) completing educational programs from indicator number two.	188
7. Number of people receiving information through "non-program" contacts such as telephone, office, and farm visits. Do NOT use #7 to answer #1- #6.	206
8. Number of participants in the High School Financial Planning program.	40
9. Number of participants in the Mini-Society program.	20
10. Number of adults trained to teach in the Mini-Society programs.	51
11. er of youth participating in a financial program (i.e. – "Money My Way" or "Financial Fitness for Youth" lessons).	133
12. Number of volunteers involved in Resource Management for Youth.	56
13. Number of volunteer hours contributed to Resource Management for Youth.	433

c. Source of Federal Funds - Smith Lever 3b&c and some grant funding.

d. Scope of Impact – National, Multi-State, and State Specific Impacts

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 2004-05 fiscal year, 439 days were planned in this project area 493 days were reported equaling 2.1 FTE’s with 5,621 total contacts including 116 limited resource contacts.

1. Number of educational programs and activities conducted.	257
2. Number of people completing educational programs.	2,711
3. Number of people reporting increased knowledge from the number completing educational programs.	1,861
4. Number of people who plan to adopt practices from the number of people who increased knowledge.	1,108
5. Number of people adopting practices from the number of people who increased knowledge.	181
7. Number of people receiving information through "non-program" contacts such	

as telephone, office, and farm visits.	1,109
8. Number of FCL volunteers conducting programs with other groups.	2,819
9. Number of volunteer hours contributed to FCL Volunteer Management and Leadership Development.	35,414
10. Number of participants reached by FCL volunteers.	5,230
11. Dollar amount of program support including time and resources.	\$623,737

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

d. Scope of Impact – State

According to the 2005 Education Report submitted by SCFCL President Pat Breznay, 17 counties sent reports with the following data totals using an \$18 per hour figure:

Family and Youth	13,268 hours were donated	\$238,824.00
Environmental and Health	7,847 hours were donated	\$141,246.00
Nutrition and Food Safety	7,168 hours were donated	\$129,024.00
Special Projects	16,783 hours were donated	\$302,094.00
State Project	4,180 hours were donated	\$ 75,240.00
Prepare/Present Lessons	4,187 hours were donated	\$ 75,366.00
Conduct Club/County Business	9,949 hours were donated	\$179,082.00
Total hours donated	63,382 hours were donated	\$1,140,876.00

Donations other than "Penny's for Friends" and Nickels for SC Youth	\$ 49,888.00
Penny's for Friends	\$ 867.52
Nickels for SC Youth	\$ 646.86

Volunteer hours plus money's donated toward the betterment of SC **\$1,192,278.38**

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

c. 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 of major concern 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 pay check to pay check 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; Woodland High School in Dorchester, SC;

Bethune-Bowman in Bowman SC, North High School in North, SC; Marion High School in Marion, SC; Dillon High School in Dillon, SC; Allendale-Fairfax High School in Allendale, SC and Allendale Department of Juvenile Justice.

The program is designed to alert, inform, and educate high school students in the fundamental concepts of financial planning. With this program, young people can acquire important, practical 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, even purchase a home and send themselves or their children to college.

- b. Impact: 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 Investments, 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 308 students in the high school financial management workshop. The pre and post test indicated that 51 percent of the students increased their knowledge, 13 percent remained the same and 24 percent took the post test.

- 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 the lack of educational and recreational activities. In an effort to address these 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 707 participants in the Summer Enrichment Program. Surveys showed that 546 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
- d. Scope of Impact: State

- a. The After School Literacy Program was offered in Williamsburg, Clarendon, Marlboro, Dillon, Hampton, and Orangeburg counties. Topics included: reading, writing, and math activities that are integrated through science and social studies using the literacy approach such as author studies and author cycles. The students were involved in the Scholastic Reading Counts and Accelerated Reader programs which used interactive modules to improve literacy. The program also offers hands-on activities in math and science that will improve higher level thinking and processing skills.
- b. Impact: The academic enrichment programs were provided in Williamsburg, Clarendon, Marlboro, Dillon, Hampton and Orangeburg counties. The program reached 787 participants. The Save the Children program provided assistance for more than 648 youth participants through their academic enrichment program. A breakdown of the participants showed of the 787 involved, 4 were Native Americans, 11 were Caucasians, 4 were Hispanics and 768 were African-Americans. There were 442 females and 345 males. Each site kept a detailed tracking record throughout the school year. Records showed that 90 percent of the youth attended the after school programs 80 percent of the time. Of those participants attending the program, the records tracked quarterly reports, homework assignments, and special projects which showed that 90 percent of the youth increased their scores by at least a half-point on the Reading Readiness grading scale. An etiquette component was included to encourage the participants to improve both their manners and social skills, while introducing more appropriate ways as methods of expression.
- c. Source of Funding: Smith-Lever
- 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 and Youth Development program. By assisting with the development of leadership skills for 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 skills practices.
- b. Impact: The basic leadership skills taught youth self-esteem, leadership, communication, and conflict resolution. The 1890 Extension 4-H and Youth Development reached 324 participants. The final results indicated that 92 percent of the participants increased their knowledge in leadership skills.
- 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 provided teachers with skills in implementing developmentally appropriate techniques and activities to preschool children so that children will enter school ready for success.

Child Development Trainings were provided to child care providers in Allendale, Florence, Hampton, and Orangeburg counties. The trainings provide meaningful activities and learning experiences, which generate an atmosphere of learning and discussion. The training hours range from 1.5 hour to 5.0 hours each.

- b. Impact: The 1890 Extension Program provided training for 465 participants. The participants represented 38 child care centers in Allendale, Florence, Hampton, Orangeburg and Calhoun counties. Participants received hours in growth and development, curriculum, and administration. The Child Development Program has steadily grown to include a more diverse audience and quality child care centers. The 1890 Extension Program offers its training at no cost to child care providers and to collaborators. State Law requires that child care providers receive 15 hours of in-service training per year. The 1890 Extension Program provided 50 hours of training. The average training cost is \$25 per class. Day care centers saved \$12,000 by attending the training. The child development training has allowed providers to reallocate funds designated for training to be used in others areas. The cost of training and travel varies by agencies and/or schools. Extension takes the child care training to the people. Therefore, the transportation and travel cost for the child care providers is reduced.

- c. Source of Federal Funds: Smith-Lever

- d. Scope of Impact: State

- a. The Building Family Strength curriculum is designed and developed to provide a comprehensive, developmentally appropriate approach to strengthen families. The program focused on five (5) family strength principles which included: history, communication, contentment, self-esteem, and humor. The program takes a holistic approach by engaging parents and children in discussion.

- b. Impact: Participants at the Orangeburg Area Boys and Girls Club, Lake Marion High School, Star Center for Learning, Connie Maxwell Children's Home, Edisto Elementary School and Mount Tabor Church in Clio, SC learned about the importance of history, communication, contentment, high self-esteem, and humor. A total of 151 students participated. Surveys showed that 120 participants increased their knowledge, 31 remained the same, and 90 participants said that they would adopt the recommended practices.

A total of 232 adults participated. Surveys indicated that 195 participants increased their knowledge and 37 remained the same.

- c. Source of Federal Funds: Smith- Lever

d. Scope of Impact: State

- a. It is essential in our fast-moving society to have some working knowledge of the fundamentals of basic financial planning. Those who understand financial planning concepts and investment principles will have a significant advantage over those who do not. The family financial planning workshop utilizes the Skills for Taking Control of Your Future curriculum. It is designed to educate and help families prepare for their financial future. Participants use a spreadsheet to document expenses and find ways to save money.
- b. Participants at the Neeses Head Start Center and Jones Chapel Baptist Church learned about family financial planning. A total of 23 adults participated in eight workshops. Surveys indicated that 20 participants increased their knowledge and 18 planned to adopt the recommended practices.

c. Source of Federal Funds: Smith-Lever

d. Scope of Impact: State

Key Theme: Youth Development

A Demonstration of the Etymological Word-Learning System

Project #SCX-206-02-03 Project Duration: October 2003-September 20 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. Thee epiphanies constitute the sudden awareness of the relationship between a host of words bound by their etymologies. This is the fundamental element in The Sankofa Language Aptitude Development System that 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 the contextual application of new words and phrases in appropriately re-structured sentences and paragraphs. The sequence and pattern of the activities under thee learning modules are structured to achieve and sustain high levels of motivation to learning among students. Each activity is designed to reinforce the notion that learning words can be easy and enjoyable.

IMPACT:

The SLADS instructional model has been field-tested extensively at selected elementary schools in South Carolina, and most recently (February- December 2002) at Sirrene Elementary School of Greenville, SC (a project funded with partial support from the *Urban League of the Upstate*). Among the two participating 3-4th grade classrooms, as much as 43 percentage points of mean item accuracy increase was observed on latter evaluations in contrast with beginning assessments. Correct response percentage increased among students from classroom “A” from 17.48% to 60.9%, and from 15.38% to 46% among students from classroom “B.” The report containing the forgoing and additional results has been submitted for publication under a

professional referred journal. To date, no response has been forthcoming regarding the status of publication.

SOURCE OF FEDERAL FUNDS: US Department of Agriculture, Cooperative State Research Service, Evans-Allen

SCOPE OF THE IMPACT: South Carolina

Key Theme: Youth Development

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

In 2003, the continuation of a five year longitudinal study to determine outcomes of violence and acting-out in students who received a mentoring experience over a two-year period beginning in fifth and sixth grades was begun. The project followed students through their graduation or into their drop-out experience to determine differences among those who were successful and those who were not. The actual project began in May 2003 and was extended to be concluded by September 2007. Some of the same or similar instruments from the first phase of the project were used in addition to some that were new because of changes in age and suitability of the instruments as well as a need to make other determinations not considered in the first phase.

In addition to the assessments, project participants were administered the Kuder Career Inventory to aid in their future career choices. A career interest questionnaire was developed and administered to determine participants' career interests. Subsequently, career clubs were established at Orangeburg-Wilkinson High School. A faculty member of the South Carolina State University Program of Nursing was most helpful in conducting a Health Sciences Career Club, in which fourteen high school seniors participated. Project participants interested in careers such as business, education and engineering were referred to other SCSU departments.

Collaboration: Administration, faculty and staff of the area high schools in Orangeburg Consolidated Districts 4 and 5, as well as, Orangeburg County Adult Education and the Calhoun County School District.

IMPACT:

The overall purpose of Phase II of the longitudinal study was to maintain contact essential to follow-up and determination of outcomes regarding adult life choices in graduates and non-graduates, post high-school education, job success or failure, and future plans. A total of 63 high school/post high school students are involved in the current study. In September 2005 of the 80 students who started the program in 1998, 40 had graduated from high school, 7 were in the 12th grade, 2 were in the GED Program, 14 had dropped out of school prior to graduation,

and 17 had been dropped from the program for various reasons. The students in the graduate, active and drop-out categories underwent assessment to determine developmental issues such as emotional development, self-concept and hope. Assessment will continue until August of 2006, at which time data will be treated to determine levels of development and the differences between those students who completed their high school education and those who dropped out.

During the period October 1, 2004 to September 30, 2005, three presentations involving 60 professional educators and mental health professionals were made and three articles were prepared and submitted for publication.

The impact of this study when completed will provide a basis for further research in the process of mentoring and program development opportunities for student retention, post secondary education and employment. The students who participated in the study will have benefited from the mentoring experience and exposure to extensive self-awareness assessments.

It is to be noted that the student population was comprised predominantly of poverty level African-American children. Research in the area of poverty indicates a need, especially on the part of educators and employers, for an understanding of the poverty issue (Payne-2002 & 2004).

SOURCE OF FEDERAL FUNDS: United States Department of Agriculture, Evans-Allen

SCOPE OF THE IMPACT: State

Key Theme: Youth Development

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

The “Action Research Project” is to identify and examine the performance of middle grade students in rural schools and under-served areas and place pre-service teachers in field-embedded learning activities using “the RARR Model, best practice School Achievement reflection and action research Model.” The following schools were contacted and identified during the summer of 2005 to participate in the study: Bowman Middle School, Guinyard Elementary School, Whittaker Elementary School, Denmark-Olar Middle School, Mellichamp Elementary School, and Felton Laboratory School. An in-service teacher was identified from each school. They were provided with project’s workshops. Additionally, content area activities were identified for each teacher using the best practices and research proven strategies.

IMPACT:

Class Impact: Elevate the achievement of low performing rural middle schools through the RARR Model.

Teacher Impact: Action research , presentations and publications on practice, skills, strategies and technology in teacher education by SCSU pre-service teachers, faculty, in-service teachers at professional conferences and in professional association journals will contribute new knowledge to the larger community of scholars and educational practitioners. Further, dissemination that describes and chronicles teacher education field-based, action research-integration models, efforts, and accomplishments to a world-wide audience through the technology implementation project website will increase the visibility of the partners and their collaborative work to tailor teacher preparation to the needs of future teachers working rural, isolated, underachieving middle grade students.

Parental Impact: Pre-service teachers will engage selected groups of parents in the differentiated strategies of the project. Five or more community parents of the students in the selected classes will develop skills to work with other community parents.

SOURCE OF FEDERAL FUNDS: US Department of Agriculture, Cooperative State Research Service, Evans-Allen

SCOPE OF THE IMPACT: South Carolina

U. S. Department of Agriculture
 Cooperative State Research, Education and Extension Service
 Supplement to the Annual Report of Accomplishments and Results
 Extension Activities

Actual Expenditures

Title of Planned Program/Activity	FY 2005
Goal 1	\$
Livestock Production	378,964.98
Commercial Vegetable, Marketing, and Home Gardening	
Sustainable Agriculture Programs	
 Goal 2	 95,443.03
Food Safety	
 Goal 3	 143,164.55
Nutrition and Health	
 Goal 4	 49,972.84
Greater Harmony Between Agriculture and the Environment	
 Goal 5	 \$785,731.44
Small Business Development Programs	
Youth Entrepreneurship	
Computer Literacy	
Family Development & Resource Development	
Enhanced Parenting Skills	

U. S. Department of Agriculture
 Cooperative State Research, Education and Extension Service
 Supplement to the Annual Report of Accomplishments and Results
 Evans Allen Research Projects

Actual Expenditures

Title of Planned Project/Activity	FY 2005
Goal 1	
Mapping and Isolating Genes	\$ 108,899.00
Germination Physiology	33,158.00
Goal 4	
Assessment of Toxic Chemical	\$ 47,987.00
Chemical Standardization	40,012.00
Goal 5	
Understanding the Effects of Community Development	\$ 36,278.00
Assessing Existing Social and Educational Programs	25,959.00
Adolescent Violence and Acting Out	27,812.00
Supercritical Solution Properties	45,855.00
Etymological Word Learning System	43,296.00
A Study of Chapter 13	28,187.00
Dynamic Analysis of the impact of NAFTA	48,083.00
Impact of Quality of Life	25,229.00
Effectiveness of Differentiated Action Research	31,244.00
Identifying Genes	99,993.00

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. Last year, a total of 3,618 white males, 1,115 white females, 1,049 black males, and 319 black females 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 report that they 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.

A seven-week Master Tree Farmer introductory short course in forest management is currently being broadcast live from Clemson University and will continue on through March 16. Follow-up evaluations have not yet been completed on the 2004 statewide programs. Impacts will likely parallel those from 2001.

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 5 –7 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, 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.

A. This program will be delivered to address the needs of underserved populations because it is delivered via the Internet. This group will be included in the pilot (Spring 2006) and National data collection that will occur later.

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

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.ree.usda.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		6,581	
Regional Water Qual Pos. (EPA)		15,000	
Orchard Floor Management		15,000	
Fire Ant Program		54,984	
Regional Apple Position		8,000	
Total		134,565	
Total	\$481,649	134,565	582,937
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: 04/01/06

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.

