

SOUTH CAROLINA

FY 2003 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, 2002 to September 30, 2003 for Research and Extension in South Carolina is respectfully submitted April 1, 2004 by:

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A. PLANNED PROGRAMS

National Goals

Goal 1: An agricultural system that is highly competitive in the global economy.

Summary of Impact for Goal 1:

Two educational initiatives serve as the framework for implementing GPRA Goal 1. These two initiatives are: Risk Management Systems for Agricultural Firms and Sustainable Agricultural Production Systems. There was a total of 10,215.5 days or 44.4 FTE reported in areas that are classified under Goal 1. The total number of contacts reported in this goal was 103,481. The breakdown of these contacts is as follows: 76,560 white males, 16,747 white females, 7,264 black males, 2,210 black females, 580 classified as other males, and 120 classified as other females. From this group, a total of 2,084 were classified as limited resource. Accomplishment that were reported to the Clemson University Information Management System show 1,223 total programs and activities conducted in projects that are classified under Goal 1. There were a total of 32,419 participants who completed these educational programs. Of those completing the programs, 24,394 reported increasing their knowledge as a result of their participation. Of those participants who reported increasing knowledge, 13,674 indicated that they planned to adopt the recommended practices while 2,277 reported that they actually adopted or increased the use of recommended practices as a result of the programs.

Key Theme -- Agricultural Profitability (Risk Management)

a. 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 developed for SC Agricultural industry. Developed and delivered market management information through the SC Agricultural Outlook Conference (SC Agricultural Expo) January 2002. Materials were provided to County Agriculture Agents for county or cluster commodity programs in the region.

Training for county agents and state specialists: A two-day in-service training for agricultural agents on market risk management techniques and the 2002 Farm Act. 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: 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.

A total of 122 programs and activities were conducted in the area of risk management with 2,013 participants. Of those participants, 1,591 indicated an increase in knowledge and 567 adopted or increased the use of recommended practices.

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

d. Scope of Impact – State

Key Theme – Agricultural Profitability (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 33 programs and activities were conducted which dealt with the area of economic analysis of enterprises and technologies with 146 participants. Of those participants, 104 indicated an increase in knowledge and 48 adopted or increased the use of recommended practices.

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

d. Scope of Impact – State

Key Theme – Agricultural Profitability (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 02-03. A total of 48 programs and activities were conducted which dealt with the area of business and financial management systems with 357 participants. Of those participants, 315 indicated an increase in knowledge. Sixty-seven persons reported that they either adopted or planned to use of recommended practices.

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

Key Theme: Sustainable Agriculture / Confined Animal Systems

- a. The confined animal production systems project was comprised of programs and activities that were designed to improve production efficiency and to provide information on current and emerging specialty animal industries. Efforts focused on increasing efficiency of production, cutting costs, and other management options.
- b. Impact:
In terms of accomplishments, 363 programs/activities, which reported to the confined animal systems project were completed. These activities saw 14,484 people complete non-formal educational programs and 11,033 of those report increased knowledge with indicating that they had changed or adopted new practices. An additional 3,556 individuals received information through “non-program” (phone, office, site visit) contacts.

Disclosures:

- 1. "Controlled Eutrophication Process"

U.S. Patents Issued:

- 1. Method for Promoting Ovulation, Parturition & Lactation in Mammals - (continuation patent)
- 2. Laminitis in Horses

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

Key Theme: Sustainable Agriculture / Integrated Management of 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^{3/4}

The horticultural systems project had 256 activities/programs report to it with 2,912 people completing non-formal educational programs and 2,452 of those reporting increased knowledge. One thousand and eighty-seven people adopted practices/changes in production practices while 1,080 people completed programs on ICM (Integrated Crop Management) and planned to adopt those practices that represent or impact 48,644 acres of production fields. There were an additional 5,034 acres planted to new alternative horticultural crops. An additional 2,557 individuals received information through “non-program” (phone, office, site visit) contacts.

US patents issued:

1. Apparatus & Method for Propagating Plants -
2. Jointless Gene of Tomato

Licenses Signed:

1. Southern Sun Biosystems, Inc. - "Natural Light Climate Control Chamber for Plant Production"

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

d. Scope of Impact: State and Regional

Key Theme^{3/4} Sustainable Agriculture / Integrated Management of 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.

The cotton industry is an important component of the overall economies of the Carolinas. Unfortunately, the cost of producing a pound of lint over the last decade has increased while yields and the price received per pound of lint has remained unchanged. Since a large percentage of cotton production costs is associated with pest control, production systems that increase or maintain yield and quality while reducing production costs is desperately needed by South Carolina cotton producers.

Yield losses due to nematodes are significant. Technologies will be developed to apply nematicides only where nematode-induced yield losses are predicted to occur. This project will determine whether yield losses due to Columbia lance and soybean cyst nematode losses are more severe in wide or narrow row soybeans. Technologies utilizing remote sensing, such as radial spectrometry, will be evaluated for their ability to detect nematode-induced plant stresses and concomitant yield losses.

still Weeds are the number one pest of Southeastern soybeans, requiring multiple in-crop herbicide applications for season-long weed control. Unfortunately, many farmers are unable to obtain adequate weed control due to multiple weed flushes, especially in wide-row soybean. This project will develop and test effective integrated weed management strategies that will minimize herbicide usage while ensuring adequate season-long weed control.

Because South Carolina fruit growers have experienced several years of drought, Clemson researchers investigated the effects of irrigation and “fertigation” (fertilizer applied through the irrigation system) on peach orchards.

Viral diseases of peaches, ornamentals, *Rubus* spp, and cucurbits (cantalopes) are causing significant economic losses in SC. It is important to characterize ‘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.

Turfgrasses and crop plants are constantly improved genetically to produce higher quality and yield. The nutrient requirements of these ‘new’ plants must be determined so that their genetic potential can be realized. At the same time new nutrient delivery materials are being developed and their performance and limitations must be defined. This project examines ‘new’ plant cultivars for efficient use of nutrients under a wide range of conditions and evaluates novel nutrient delivery systems.

b. Impact ³/₄

Three hundred and twenty-five activities/programs were reported to this project with over 11,224 people completing non-formal educational programs. Of these 47,952 people reported increased knowledge and 957 adopting recommended practices. Further, 4,090 people completed ICM programs and planned to adopt recommended practices. Over 12,632 acres were impacted by ICM project activities. An additional 5,289 individuals received information through “non-program” (phone, office, site visit) contacts.

Agronomic Practices And Management Systems For Optimum Cotton Productivity And Profitability In South Carolina. Preliminary data from these studies indicates reduced tillage appears to be a viable option for South Carolina Cotton Growers.

Excellent weed control was attained in all tillage systems, including a Roundup only herbicide system. This system has the potential to decrease the overall cost of weed control in cotton. Newer cotton cultivars responded favorably to higher potassium rates and could possibly benefit from higher than currently recommended rates for cotton. Information gleaned from all these studies will be used to strengthen and update South Carolina Extension recommendations.

Management And Site-Specific Detection Of Nematodes Affecting Cotton And Soybean. Use of soil electrical conductivity (SEC) to predict soil texture has been very successful. Linear models predicting % sand or clay based on SEC are extremely accurate with regression coefficients over 0.90. This will allow accurate efficient mapping of soil textures with an SEC meter. Five hectares could be mapped in an hour for a cost of less than \$5 per hectare, less than a fourth of the current cost for manual mapping and determinations. Two important nematode pathogens of cotton, Columbia lance and root-knot nematodes exhibited very different distribution patterns by soil texture. This allowed us to target specific soil textures with high rates of nematicides to control the high levels of nematodes present. Other soil textures which were associated with low levels of the two nematodes were treated with low levels of nematicides. By matching nematicide application rates to predicted nematode distributions (precision applications) nematodes can be controlled and 5% yield increases obtained with reductions of 34% to 78% in nematicides used and economic inputs. In South Carolina alone this would result in a reduction of almost 180,000 kg of Temik 15G with a minimum savings of \$1,200,000 to growers. In the United States these savings could easily exceed \$35,000,000. There are over 1.5 million hectares with serious nematode infestations. The variable rate system reduces nematode usage and cost over 60% with an equivalent decrease in the application of nematicides to the soil.

Integrated Weed Management In Southeastern Soybeans.

The mix-seeded soybean system can easily be adopted by farmers as a means to achieve rapid crop canopy coverage, reducing the early-season weed emergence in soybean. As a result of the rapid canopy formation, a single application of glyphosate appears to be adequate in providing season-long weed control. Additionally, it is apparent that weeds commonly associated with crops in the Southeast vary considerably in their ability to emerge and survive beneath a dense crop canopy. This information may aid farmers in assessing the need for sequential glyphosate applications based on weed composition and their ability to tolerate crop shading. Based on the high degree of weed suppression obtainable with wild radish, farmers could potentially utilize the indigenous weedy cover for early-season weed suppression in summer crops. However, with the limited crops tested thus far, some have exhibited tolerance to soil-incorporated wild radish residues, whereas others appeared highly sensitive, such as cotton. Thus, it is essential that farmers having cotton or other sensitive crops limit the establishment of wild radish in early-spring, prior to establishing summer crops. In fields where cotton is not be grown, wild

radish may be effectively used to limit early-season weed emerge, reducing in-crop herbicide use.

Irrigating fruit orchards pays off with larger fruit and larger yields

A trial orchard planted at the university's Musser Tree Fruit Research Farm monitored soil moisture content throughout the growing season. In addition, rainfall, evaporation rates and other environmental data were collected each day from the weather station. This information is being used to develop an irrigation scheduling protocol.

The study found that new trees that were irrigated grew 50% more than non-irrigated trees in the first two years. This early tree growth helps establish tree structure and fruit-bearing surface so the trees can produce and support more fruit in later years.

In the first year of the study, irrigated trees produced 100% higher yields than non-irrigated ones. In the second year, the yield was 50% higher for the irrigated trees. In addition, the fruit on irrigated trees was marketable size (2-1/2 inches or larger) while the fruit on non-irrigated trees was more likely to be lost because it was smaller than marketable size due to the drought.

An underground camera system is recording root development in the irrigation study. In the first season, the scientists observed that irrigated trees developed many more feeder roots than the control trees. This means the irrigated trees have more capacity to receive water and nutrients. The scientists plan to use this data to develop recommendations for optimum times to apply fertilizer in irrigated orchards.

Viruses And Viral Diseases Of Crops Of Economic Importance In South Carolina. The research to date has provided viral isolates in herbaceous material which should facilitate identification and characterization of these novel viruses.

Eliminating Soil- And Water-Related Constraints On Environmentally Sound Plant Culture. Preliminary results for the K nutrition of the most modern cotton cultivars suggests they accumulate more K and produce more lint per unit of K accumulated than older cotton cultivars. If these results hold in multi-year multi-location tests then fertilizer recommendations based on soil test will have to be revised to account for this higher utilization of K. Preliminary results for the application of pigmented fungicides to ultradwarf bermudagrass suggests the nutritional content of these materials (Zn, Mn, and P) is unlikely responsible for the substantial improvement in turf quality frequently obtained. Further research should focus on the impact of the pigments on plant metabolism.

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

- d. Scope of Impact: State and Regional

Key Theme: Sustainable Agriculture / Organic Production

- a. The organic production project focused on extension and outreach programs related to organic production, marketing and certification. The Calhoun Fields Laboratory site was established for experiential learning in organic systems. Specific focus areas included diverse market crops, use of cover crops and green manures, and alternative methods of pest and nutrient management. An agent training program entitled "Building Farming Systems for High Value Organic and Niche Market Commodities" was initiated with the first workshop held in December.
- b. Impact ³/₄
Twenty-four activities/programs were reported to this project with 632 people completing non-formal educational programs. Of these 625 people reported increased knowledge and 565 individuals adopting recommended practices. An additional 30 individuals received information through "non-program" (phone, office, site visit) contacts.
- c. Source of Federal Funds – Smith Lever 3b&c and Hatch
- d. Scope of Impact – State and Regional

Key Theme: Sustainable Agriculture / Farm Safety

- 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 equipment operation.
- b. Impact:
Fifty-two activities/programs were reported to this project with 651 people completing non-formal educational programs. Of these 322 people reported increased knowledge and 168 planned to adopt recommended practices. An additional 122 individuals received information through "non-program" contacts.
- c. Source of Federal Funds: Smith Lever 3b&c
- d. Scope of Impact: State

Key Theme: Focus Area 151: Retention of Small/Minority Farms

Statement of the Issue

There are approximately 1,412 African American, 45 Native American, 15 Asian American and 105 Hispanic owned and operated farms in South Carolina, according to the state Department of Agriculture Report (1997). The number of minority owned farms is on the decline due to various social, economic and political conditions within the state. Chiefly among them are land loss, discrimination in access to credit, the insensitivity of government at the state and federal level to effectively address the issues impacting them, and the lack of commitment to put into place the necessary impact programs that can provide comprehensive and prescriptive solutions for farmers. Moreover, the decline in minority-owned and operated farms is because farmers rely on conventional agricultural practices. Most small farmers cannot afford new technology or crop insurance and they have poor land due to soil erosion and pesticide contamination.

Therefore, the objective of the 1890 Extension Agriculture and Natural Resources Program is to assist socially disadvantaged farmers in reversing their economic decline through research, education and technical outreach assistance. Using federal funds, the two focus areas emphasized were the retention of small, minority farms and sustainable agriculture. Farmers in Hampton, Allendale, Jasper, Colleton, Beaufort, Chesterfield, Marlboro, Dillon, Marion, Florence, Orangeburg, Calhoun, Bamberg, Dorchester, Williamsburg, Clarendon, Greenwood, Saluda, Edgefield, McCormick and Anderson counties are being served by the 1890 Extension Agriculture and Natural Resources Program.

Performance Goal(s)

EXT1:

To assist small minority farmers in retaining their land and reversing the decline in the number of small, minority farms, the 1890 Extension Agriculture and Natural Resources Program provided management training to farmers in the area of production, marketing, leadership, risk management education, and farm enterprise management. Through participation in the Beef Cattle Improvement Project, the Meat Goat Project and Commercial Vegetable and Home Gardening Project, disadvantaged farmers learned to operate a successful farm business, gained a small profit, enhanced their access to agricultural resources and contributed to the local economy.

RES1:

The North American Free Trade Agreement (NAFTA) has been effective since January 1994. Some trade barriers have been reduced or eliminated. Past studies analyzed NAFTA effects on a national level in participating countries and as such ignore important possible effects of the Agreement on specific states or regions within each country. This is important because the NAFTA effects cannot be the same across states or regions within countries. It is this lacking evaluation that we propose to address in this study. The Project goal is to evaluate NAFTA's impacts on local

farmers in South Carolina and its effect on major crop trade flow. Specific objectives are to: 1) Estimate the dollar volume of trade creation and diversion in the vegetable and fruit industries attributable to NAFTA in South Carolina, 2) Assess alternative trade policy options to optimize NAFTA benefits from vegetable and fruit trade and compare South Carolina's trade position in the selected commodity trade with the rest of the Southeast Region (SER), 3) Evaluate economic and non-economic factors affecting trade flow of vegetables and fruits from South Carolina and the rest of the Southeast region to other NAFTA countries., 4) Develop and disseminate, using School of Business graduate students, NAFTA-related strategies that benefit small farmers and establish computerized links between NAFTA expansion effects and 1890 Extension and Outreach activities.

Output Indicators (Beef Cattle Improvement)

The 1890 Extension Beef Cattle Improvement Project conducted 65 technical assistance trainings for 96 small-scale, limited-resource beef cattle producers in the area of production, herd quality, pasture management, marketing, and risk management education. A total of 88 or 91 percent of the farmers participated in the technical assistance training activities. The farmers attended 58 workshops, trainings, meetings, farm demonstrations, farm tours, and USDA sponsored conferences. Twenty-eight educational handouts were distributed for utilization by the small scale beef cattle producers. The Beef Cattle Improvement Project engaged in 31 collaborations with local and state government, USDA agencies, agribusiness firms and private businesses.

In addition, the Beef Cattle Improvement Project partnered with Heifer International to assist small farmers in making their livestock quality better by placing quality breeding animals on their farms. Once farmers breed animals, they are encouraged to pass-on their offspring to other farmers so they can improve their herd. As a result of the partnership, 124 heifers and 18 bulls have been placed on limited-resource farms. Ninety-six farmers enrolled in this initiative and 73 were active participants. Fifty-eight families have been assisted through the animal pass-on-initiative, which passed on 62 heifers and three bulls to participating farm families. Producers of the beef cattle project were 88 percent African- American, nine percent Caucasian-American and three percent Native-American. A total of 281 farm visits were made during the fiscal year 2002 - 2003.

Outcome Indicators

Fifty-five percent of those participating in the beef cattle project said they received educational information as a result attending the workshops, meetings and/or training sessions; 52 percent adopted the recommended practices to improve herd management; 73 percent are making progress toward retention of their small farm; 52 percent adopted educational information and integrated it into their farming operation; 43 percent increased their knowledge and nine percent reported an increase in their farm income. Fifty-four percent of the farmers are producing a calf annually per cow and 36 percent have medium production averaging a calf per year every 13-18 months.

Output Indicators (Meat Goat Project)

The 1890 Extension Meat Goat Project conducted 36 technical assistance trainings for 28 small-scale, limited-resource meat goat producers in the area of production, herd quality improvement,

marketing and risk management education. These farmers also integrated Heifer International into their farm activities. Qualified farmers were provided five does and one buck and were required to return seven does and one buck to the program. These animals in turn were placed with another qualified farmer. A total of 26 or 92 percent of the farmers have participated in technical assistance training activities. Twenty-six workshops, trainings, meetings, on farm demonstrations, farm tours, and USDA sponsored conferences, and 16 educational handouts were distributed for utilization by the meat goat producers. The meat goat project engaged in 33 collaborations with local and state government, USDA agencies, agribusiness firms and private foundations that assisted farmers to improve their farm operations. Farmers participating with the 1890 Extension Meat Goat Project consisted of 83 percent African-American, 10 percent Caucasian-American, and seven percent Native-American. A total of 161 farm visits were made during the 2002-2003 fiscal year.

Outcome Indicators

The Meat Goat Project participants attended 26 workshops, on-farm demonstrations and hands-on trainings. These 36 technical assistance trainings translated into 61 percent of the participants obtaining educational information; 61 percent adopted the recommended practices; 78 percent acknowledged making progress toward retention of their small farm; 57 percent adopted information and integrated it into their farming operation; 21 percent increased their knowledge, and 14 percent reported an increase in their farm income.

Output Indicators (Commercial Vegetable and Home Gardening Project)

The 1890 Extension Commercial Vegetable and Home Gardening Project conducted 73 technical assistance trainings for 161 small and limited-resource farmers in the areas of vegetable production, marketing education and risk management. A total of 113 or 70 percent of the farmers have participated in technical assistance training activities. Participants attended 48 workshops, trainings, meetings, on-farm demonstrations, farm tours, and USDA sponsored conferences. Producers were given 14 educational handouts on commercial vegetable production and home gardening. To assist farmers with production and marketing, 1890 Extension established 28 collaborations with local and state government, USDA agencies, agribusiness firms and private foundations. The South Carolina Farmers Market Nutrition Program certified farmers to accept vouchers from the Women Infants and Children (WIC) and the Senior Citizens programs, while Clemson Extension Service trained farmers in pesticide and vegetable handling. Local farm supply businesses donated collard transplants and fertilizer to help disadvantaged farmers provide fresh vegetables for the community.

The farmers participating with the 1890 Extension Commercial Vegetable and Home Gardening Project were 61 percent African-American, 26 percent Caucasian and 13 percent Native-American. A total of 126 farm visits were made during the 2002-2003 fiscal year.

Outcome Indicators

Participants attended 48 workshops, on-farm demonstrations, and hands-on training sessions geared toward helping farmers grow and sell fresh vegetables through the Commercial Vegetable

and Home Gardening Project. As a result of the 73 technical assistance trainings, 34 percent of the participants adopted knowledge transfer, 39 percent adopted the recommended practices, 41 percent are making progress toward retention of their small farm, 11 percent adopted information and integrated it into their farming operation, nine percent increased their knowledge, and 24 percent reported an increase in their farm income.

Output Indicators: (Comparative Study on the Impacts of NAFTA on South Carolina and the Southeast Region)

- RES1:** 1) The NAFTA research project has reported one publication accepted for presentation at a biannual meeting.
2) One brochure was developed and distributed to farmers and other attendees at the Orangeburg County Fair.

HE1: The students were able to write theses, term and/or technical papers required in the partial fulfillment of the requirements for graduation or course work.

Outcome Indicators

RES1: A Representative Farm Model developed at South Carolina State University's School of Business was used to evaluate the impacts of NAFTA and other international trade policy on local farmers in South Carolina. The State of South Carolina was divided into three distinct geographical areas: The Piedmont, Northern Coastal Plains, and Southern Coastal Plains. To build the model, we divided farms, in each region, by size into large, medium, and small size farms which was based on planted acreage of the four major South Carolina crops: cotton, soybeans, wheat, and corn according to the USDA (1997). Our findings suggest that large and medium size farms are expected to perform well under NAFTA based on both the forecasted optimistic and economic pessimistic scenarios. The conditions were incorporated in the model using national average price forecasted by the Food and Agricultural Policy Research Institute of Missouri (FAPRI). The results for the average Representative Small Farm Model clearly suggest that the average small farms are negatively affected by free trade under both and/or either optimistic and pessimistic scenarios. For example, the average small representative farm's net farm income is expected to decrease from a level of \$9,384.00 in 1999 to a level of \$7,256.00 in 2009, a decrease of nearly 23% in 10 years under the most optimistic scenario. While land prices for the average small farms exhibit a slight increase over the 10- year period under optimistic conditions, the ending land prices are lower than beginning prices under the pessimistic scenario. Cash rent behavior is similar to the land price behavior. Debt asset ratios edge up higher than their relative beginning levels under the most optimistic scenario. The overall findings predict that average small farms are at competing disadvantage in the globalization.

HE1: A total of one (1) B. S. student and two (2) M. S. graduated from the School of Agribusiness and Economics during the reporting period.

Key Program Components

Beef Cattle Improvement Project

The 1890 Extension Beef Cattle Improvement Project is designed to provide the small-scale, limited-resource farmer hands-on training through on-farm demonstrations about herd health practices such as vaccinating animals, deworming, and other herd health practices. Farmers also learn niche, direct and group marketing in order to obtain higher prices for their herd. These skills enhance small farm enterprise management, business decision-making, while promoting low cost production concept.

In order to accomplish these strategies, the Beef Cattle Improvement Project in collaboration with Heifer International, placed a quality animal on qualifying farms and provided a select group of farmers access to a pure bred bull, in order to improve the quality of their herd. Through the Beef Cattle Improvement Project, farmers have access to knowledge and training that can increase their herd management skills and enable them to make more informed business decisions. The majority of the farmers who participate with the Beef Cattle Improvement Project reported an increase in their farm income following the implementation of low-cost production practices learned from the workshops and hands-on trainings they received.

Meat Goat Project

The Meat Goat Project assists small, limited-resource farmers to utilize agriculture and natural resources to develop an alternative livestock enterprise compatible with their farm size and farming systems. The project concentrates on the production practices and marketing efficiencies for small-scale farmers. Qualifying farmers receive five does and one buck and in return the farmer will donate seven does and one buck to the project. Using the pass-on the gift process, farmers have an opportunity to enhance their farm cash flow, enterprise diversity and production practices. Selected farmers have reported an improvement in their production and management. Some farmers have integrated meat goat production with the beef cattle production.

Commercial Vegetable and Home Gardening Project

To offset the collapse in the price of products and the higher cost of production in the traditional row crop farm enterprise, the Commercial Vegetable and Home Gardening Project helps rural farmers and gardeners, with a small acreage, make a profit growing and selling fresh vegetables. Interested farmers gain assistance with production strategies, product selection, marketing outlets, risk management education, sustainability and community agriculture. Participating farmers demonstrated a knowledge increase and improved their production practices. The creation of local farmers market has provided the home gardener a marketing outlet and a place for the community to purchase fresh fruits and vegetables, as well as a source of improved nutritional value.

RES1: Trade flow of commodities, generally are determined on the basis of the principle of comparative advantage in a free trade system. Since trade flow may be enhanced or distorted by various government interventions, determinants of vegetable exports, trade flow, and their economic effects are not clearly known. Using a gravity model of trade and Organization for Economic Cooperation and Development (OECD) level data, this study evaluates factors affecting vegetable trade flow and the dual impacts of environmental regulations and free trade agreements to determine the effects of trade enhancing and resisting factors in the vegetable trade flow. This study

demonstrates that the gravity models can be effectively parameterized to identify the determinants of specific commodity trade flow and perform comparative static of the effects of various factors affecting the single commodity trade. The results are mostly consistent across years and most commodities.

In addition to traditional gravitational factors, significant positive trade creation effects of NAFTA were found larger than those of the European Community/European Union (EC/EU). The variables representing the incomes in origin and countries of destination as well as distance between the export and import points have the correct expected signs and are significant determinants of trade flow in most vegetables included in the analysis. While free trade variables enhance trade flow, their significance varies by commodity. Furthermore, the amount of import trade creation is relatively greater than the amount of export trade diversion.

The hypothesis that a country's stringent domestic environmental policies reduce the country's international competitiveness was tested. Variables representing environmental risks were included in the gravity models. The results of several vegetable commodities tended to support the hypothesis. The analysis of trade creation and diversion of fruits and vegetables under NAFTA is being conducted using a bilateral trade flow equation.

HE1: The key program components of the B. S. and M. S. degrees in Agribusiness are the specific courses which make up the degree programs.

Internal and External Linkages

While working to retain small, limited-resource farmers and to assist farmers increase productivity, the 1890 Extension Program is keeping farmers abreast of the resources available from other agencies. The partnership between 1890 Extension and Heifer International allows farmers to enhance their meat goat and beef cattle production, network with other farmers, produce higher quality animals and increase farm revenue. To assist farmers with beef cattle, meat goat and vegetable production, collaborations were established with Natural Resources and Conservation Service, USDA Rural Development, Farm Service Agency, South Carolina Cattleman's Association, Greenwood Beef Producers, Greenwood Forestry Association and Clemson Extension Service. These collaborators provided information to help farmers with farm and land management concerns. As well, the program partnered with Merial Corporation and Southern States, local businesses that donated between \$100 and \$400 in supplies and materials for the farm demonstrations.

Impact

One hundred eighteen small, part-time and limited-resource beef cattle producers in Hampton, Jasper, Marlboro, Saluda, Orangeburg and Williamsburg counties enrolled in the Beef Cattle Improvement Project. Over a six year period, 124 heifers and 18 bulls have been placed on farms. Sixty-two animals were passed on as gifts from one producer to another in order to satisfy the animal pass-on requirement. A total of 192 families were assisted and blood lines of existing herds were improved. The production of highly marketable animals improved cash flow for 75 percent of participating producers. Ninety percent have improved the quality of their herd and 70 percent improved the quality of their pastures with pasture production increasing by 225 acres.

Success Story

Cornelia McManus, a retired teacher from New York, returned to her native home of Edgefield, SC in 1997 to rekindle the life she remembered growing up on a farm. She decided to start a beef cattle cow-calf operation, a male oriented farm enterprise, and purchased eight cross bred heifers and one bull from a local small farmer who was going out of business.

In 1998, she joined the Edgefield Beef Producers Association and the 1890 Extension Beef Cattle Improvement Project. She became the driving force behind the Edgefield Small Farmers Association and held the position of secretary. Her management practices and the size of the farm operation qualified McManus to receive two high quality heifers and access to the pure bred bull owned by the project. During the year when the beef industry prices were low, McManus broke even. She successfully completed her contract in 2000 by passing two outstanding heifers back to the program. She has produced top quality animals on a consistent basis, which resulted in a premium price on the local market and translated into a significant profit.

McManus manages a herd of 18 outstanding heifers and one pure bred bull on a 57 acre pasture. Her leadership skills, dedication and determination for perfection have earned her respect within Edgefield as a small-scale beef cattle producer.

RES1: (Comparative Study on the Impacts of NAFTA on South Carolina and the Southeast Region)

The project involved internal linkage with the Department of Agribusiness and Economics, involving faculty development, curriculum development in international trade, graduate student practical training and outreach, and opportunities to promote thesis development at the graduate level. The external linkage with the South Carolina Department of Agriculture, in the area of the impacts of NAFTA on South Carolina food products and specialty crops and support endorsed through collaboration with state agricultural departmental personnel in the areas of marketing and promotion and export.

RES1: IMPACT

A gravity model of vegetable trade to identify and analyze factors affecting trade flow was designed. Data used in the analysis was provided by the Global Trade Information Services, Inc. The model is used to evaluate and compare the effects of factors affecting state exports. Gravity models are used to determine economic and non-economic factors enhancing or resisting trade in vegetables. The study demonstrates that gravity models can be effectively parameterized to identify determinants of specific commodity trade. The results revealed that state farm income and importer's income as well as import prices are significant determinants of vegetable trade from the Southeast Region (SER). Significant trade creation effects were found that are larger than trade diversion effects. The analysis of trade creation and diversion of fruits and vegetables under NAFTA is being conducted using a bilateral trade flow equation.

We have completed primarily estimates of equations of bilateral trade flow of vegetables and fruits between the US and Mexico. The impact of NAFTA on the trade flow is presently being evaluated. The activity involves the use of import elasticities of demand to estimate the amount of trade creation and diversion attributable to NAFTA.

Key Theme: Program Focus Area 152: Sustainable Agriculture

Statement of Issue

Conventional agricultural practices have resulted in herbicide and pesticide contamination, soil erosion, a decline in genetic diversity of crop and livestock and human health risks. To ensure an effective food and fiber production system, producers must be educated on the farming practices needed to sustain the environment, the economy and the health and well-being of its citizens. The South Carolina State University 1890 Extension Agriculture and Natural Resources Program promotes programs and activities that foster sustainable agriculture practices and policies. These programs educate farmers to implement production systems that require the application of low off-farm input and provide opportunities for farmers to grow crops that meet consumer demand within environmentally safe conditions.

On the research side, nine small-scale farmers from different areas of the state of South Carolina were selected to participate in the project entitled, "Small Scale Aquaculture/Vegetable Farm in South Carolina." The selection was based on their interest in aquaponics and vegetable production, water quality, and management. The selected technology, known as aquaponics, was adopted from the Virgin Islands since there were no other small-scale aquaponics systems in South Carolina. The system involves the growing of fish (tilapia in this project) and selected vegetables simultaneously in a greenhouse. The construction of the greenhouse and aquaponics systems took place during the period 1999/2000. The aquaponics system was later modified to suit the local needs. Each farmer was provided with 300-350 Tilapia fingerlings in June 2000 to partially stock one cage.

Performance Goal(s)

EXT1:

The objective of the Agriculture and Natural Resources Program is to reduce off-farm input and integrate natural processes such as nutrient cycling, nitrogen fixation, and pest-predator relationships into agriculture production processes. Farmers have access to three program initiatives that include: Soil Sampling and Nutrient Management, Integrated Pest Management and the Small Farm Association. These programs focus on management training in the area of small family farm sustainability, risk management education and farm land preservation. The success of the program is dependent upon full participation of farmers and other rural people to ensure a profitable operation. The 1890 Extension Program implements activities and programs which promote sustainable agriculture practices.

RES1: (Soil pH and Plant Growth)

The overall goal is to improve crops and control weeds by controlling soil pH. The five crop species were soybeans, cucumbers, okras, string beans and garden peas. The five weed species

pigweed, wild mustard, crotalaria, common ragweed and cocklebur were used in the research. Germination, absorption and seedling growth studies were performed in Petri dish germinators containing filter paper moistened with distilled water adjusted to specific pH. Indoor and outdoor growth studies were done on soil adjusted to specific pH where the watering was done with distilled water matching the pH of the potting soil.

RES2: (Small Scale Aquaculture/Vegetable Farm in South Carolina)

The primary objective of the study is to conduct field experiments to evaluate the economic and biological feasibility of a sustainable, integrated, small-scale vegetable/aquaculture farm in South Carolina. The specific objectives are to: (1) evaluate the potential for marketing fish and vegetables of small-scale farmers in specialty markets in South Carolina; (2) collect and analyze data to determine the components (within both aquaculture and crop production) of a fully integrated sustainable farm with the greatest benefit/cost ratio; (3) construct enterprise budgets for the selected enterprises included on the farm; (4) determine the economic feasibility of development and operation of a fully integrated, sustainable, small-scale fish/vegetable farm; and (5) determine the impact of sustainable, integrated agricultural management practices on natural resources (water quality, soil fertility) at the farms. The objectives addressed during this reporting period are (1) to continue support participants in resolving issues or problems they might be faced with; (2) to construct an experimental aquaponics system in the 1890 greenhouse facility for the purpose of training.

Output Indicators (Soil Sampling and Nutrient Management)

The Soil Sampling and Nutrient Management Project conducted 94 technical assistance sessions for 104 small-scale, limited-resource farmers in the areas of production, soil quality, and nutrient management. Ninety-four farmers received technical assistance with soil sampling, preservation and analysis of the recommended results. On-farm demonstrations were conducted on soil sampling, and seven educational handouts were distributed and utilized to support soil nutrient management training activities. USDA-Natural Resources and Conservation Service, Clemson Extension Service and Pioneer Seed Company collaborated with the 1890 Extension Program to provide training to farmers in the areas of soil preservation and fertilizer application. Seventy-five percent of the participating farmers were African-American and six percent were Caucasian-American. A total of 104 farm visits were made during the 2002-2003 fiscal year.

Outcome Indicators

The participating farmers attended 40 on-farm demonstrations, hands-on trainings, and 94 technical assistance sessions that resulted in 98 percent of the participants adopting the recommended practices and 58 percent adopting information on soil sampling and integrating learned practices into their farming operation.

Output Indicators (Integrated Pest Management)

The 1890 Extension Integrated Pest Management (IPM) project conducted 28 technical assistance sessions for 40 small-scale, limited-resource farmers in the areas of production, integrated pest management and sustainable practices. Technical assistance training activities were conducted for 36 farmers, in addition to 37 on-farm demonstrations and workshops on integrating pest management workshops. Educational handouts were distributed and utilized to support IPM training activities. USDA-Natural Resources and Conservation Service, Clemson Extension Service and Merial Corporation collaborated with the 1890 Extension Program to assist small farmers in implementing integrated pest management techniques that can improve farm productivity. The racial make-up of the participants was 97 percent African-American, three percent Caucasian-American, with 90 percent male and eight percent females. A total of 104 farm visits were made to assist farmers during the 2002 - 2003 fiscal year.

Outcome Indicators

Fourteen on-farm demonstrations and hands-on trainings were held as part of Integrated Pest Management. Farmers attended 28 technical assistance sessions that resulted in 90 percent of the participants adopting knowledge transfer and the recommended IPM practices. Fifty-five percent of the farmers are making progress toward retention of their small farms, while 90 percent adopted insect scouting and integrated learned practices into their farming operation. After integrating pest management techniques on their farm, 20 percent of the participants reported an income increase.

Output Indicators (Small Farm Association)

The Small Farm Association is active in Hampton and Greenwood counties. There were four technical assistance sessions conducted and 48 workshops and training activities for 45 small-scale, limited-resource farmers in the areas of community leadership skills and farmer network activities. Thirty-six farmers participated in educational training activities, and 26 educational handouts were distributed and utilized to support the leadership and network training activities. Thirteen collaborations with agencies contributed to the training. The participants were 88 percent African-American and 22 percent Caucasian. Additionally, there were 86 percent male and 14 percent females.

Outcome Indicators

The participating farmers attended 48 workshops and trainings on leadership skills, networking, and cooperation concepts that resulted in 33 percent of the participants adopting knowledge transfer and the recommended IPM practices and 56 percent are making progress toward retention of their small farms. Ninety percent of the participants adopted the information and integrated it into their farming operation.

Output Indicators

Soil pH and Plant Growth

- RES1:** 1) The Soil pH research project had one publication (Final Bulletin) in a referred and/or non-referred journal.
- 2) One paper was developed and presented by students at the undergraduate and/or graduate level in research and outreach work.
- 3) Two (2) abstracts were developed by students for paper presentations.

Sustainable Small Scale Aquaculture/Vegetable Farms

- RES2:** 1) The research project presented one paper at an international conference
- 2) One poster presentation at a biennial meeting was prepared.

HE1: 1) Eight (8) B. S. students were employed with the research project during the reporting period.

HE2: 1) Three (3) graduate students assisted in the research during the reporting period.

Key Program Components

Soil Sampling and Nutrient Management

The Soil Sampling and Nutrient Management Project educated disadvantaged farmers about soil sampling techniques and their implications. They were taught the importance of soil nutrient management and its application. Hands-on trainings and demonstrations were conducted on soil sampling techniques and soil nutrient management application. Farmers have demonstrated an increase in their knowledge due to techniques learned by attending the trainings and workshops. As a result, the farmers improved their stewardship

Integrated Pest Management (IPM)

The objective of the IPM program is to rid crops of unwanted pests, and to reduce the use of pesticides that are harmful to the environment. The purpose of the project is to teach farmers how to decrease their off-farm input application through IPM practices, while still achieving their production goals using environmentally safe measures. The majority of the participants learned to identify beneficial insects and their contributions to the environment. As a result of the training, farmers were able to save on their production input cost.

Small Farm Association

The Small Farm Association provides national exposure to the participants and raises their awareness of agricultural issues. The association helps address the needs and concerns of the small, limited-resource farmer by promoting marketing strategies, networking and cooperative opportunities. Scholarships were given to 20 farmers who attended sustainable agriculture workshops and conferences sponsored by Sustainable Agriculture Research and Education (SARE)

and the Southern Sustainable Agriculture Working Group (SSAWG).

Soil pH and Plant Growth

- RES1:**
- 1) To study the pH of the groundwater from the top soil samples from select South Carolina farm land.
 - 2) To determine the optimum pH requirement for accelerating plant growth and yield, and optimum pH range for seed germination for selected plant species.
 - 3) To measure the rates of water absorption in germinating seeds.
 - 4) To compare the behavior of selected crop species with weed species in a diverse pH range.

Sustainable Small Scale Aquaculture/Vegetable Farms

- RES2:**
- 1) To evaluate the potential for marketing crops and fish of small-scale farmers in specialty markets in South Carolina.
 - 2) To collect and analyze data to determine the components (within both aquaculture and crop production) of a fully integrated sustainable farm with the greatest benefit/cost ratio.
 - 3) To construct enterprise budgets for the selected enterprises included on the farm.
 - 4) To determine the economic feasibility of development and operation of a fully integrated, sustainable, small-scale fish/vegetable farm.
 - 5) To determine the impact of sustainable, integrated agricultural management practices on natural resources (water quality, soil fertility) at the farms.

Internal and External Linkages

The partnership between 1890 Extension and Heifer International allows farmers to enhance their meat goat and beef cattle production, network with other farmers, produce higher quality animals and increase farm revenue. The 1890 Program also partnered with Sustainable Agriculture Research and Education (SARE) and the Southern Sustainable Agriculture Working Group (SSAWG), which provided 20 farmers an opportunity to attend trainings and conferences. Through a collaboration with the South Carolina Farmers Market Nutrition Program small farmers were trained to accept food vouchers from the Senior Citizens and Women, Infants and Children recipients.

Soil pH and Plant Growth

RES1: The project collaborated with the Department of Biological Sciences, the Department of Physical Sciences and 1890 Extension Program on the campus of South Carolina State University to complete the research project. Small minority farms were selected to test soil samples, crop and weed germination, improve test methods and assess the results on plant growth and yield, due to exposure to diverse pH ranges.

Sustainable Small Scale Aquaculture/Vegetable Farms

RES2: Inter-departmental collaboration with South Carolina State University included the Department of Agribusiness and Economics and the Department of Biology.

The project also collaborated with the 1890 Extension Program and participating Farmers who were selected from various areas across South Carolina.

Target Audiences

Soil pH and Plant Growth

RES1: Small-scale minority farmers

Sustainable Small Scale Aquaculture/Vegetable Farms

RES2: Small-scale South Carolina farmers

Program Duration

Soil pH and Plant Growth

RES1: Project expired December 1, 2002

Sustainable Small Scale Aquaculture/Vegetable Farms

RES2: The project expiration date is May 30, 2004

Impact

The 1890 Extension Program developed a vegetable marketing program for small farmers interested in vegetable production and pest management. Through the Integrated Pest Management (IPM) program, 23 small farmers collaborated with local businesses and state agencies to establish two community farmers markets in Hampton and Jasper counties. The farmers were certified by the South Carolina Farmers Market Nutrition Program to accept food vouchers from the Senior Citizens and Women, Infants and Children recipients. The farmers accepted \$25,000 in senior vouchers and \$10,000 in WIC vouchers. A total of \$70,000 was earned at the two markets, which may have resulted in \$2,800 for each of the 23 farmers.

Success Story

A livestock producer in the Early Branch Community of Hampton County who operates a 39 acre farm is having success with permanent pastures after receiving assistance with soil sampling and nutrient management. The farmer traditionally planted seasonal pastures, generally oats and rye in the Fall and millet in the Spring. The continuous planting of forage is costly, so the farmer wanted a low cost forage production system. However, poor nutrient soil prevented adequate forage for the beef cattle, meat goat and swine. Through participation with the Soil Sampling and Nutrient Management Program, the farmer cooperated with 1890 Extension and local agriculture agencies and planted a Hybrid Bermuda grass as a permanent pasture. The grass is grown on sandy soils, making it ideal for this farmer. The experimental plot has been successful and as a result of planting the Hybrid Bermuda grass, the farmer reduced feed cost and made an additional \$35 per animal. With 38 animals on the farm, the farmer's revenue increased \$1,330.

Key Theme – Agricultural Profitability

- a. A representative farm model was developed at South Carolina State University's school of Business to evaluate the impacts of NAFTA and other international trade policy on local South Carolina farmers. While land prices for the average small farms exhibit a slight increase, the ending land prices are lower than the beginning prices under the pessimistic scenario. The average small farms are at a competing disadvantage in the globalization.
- b. Impact – Preliminary results suggest that the average large and medium size farmers of wheat, soybeans, corn, and cotton in South Carolina are expected to benefit from NAFTA and international trade agreements. However, the findings reveal that the average small size farmers of the same crops are adversely affected by the agreements under even the most optimistic economic scenario. The results were site specific and consistent across counties. Gravity models were used to determine economic and non-economic factors enhancing or resisting trade in vegetables. The study demonstrates that the gravity model can be effectively parameterized to identify determinants of specific commodity trade. The results revealed that state farmers income and importers income as well as import price are significant determinants of vegetable trade from the southeast region. Significant trade creation effects were found that were larger than trade diversion effects.
- c. Source of Federal Funds – Evans-Allen (\$54, 908)
- d. Scope of Impact – South Carolina, North Carolina and Georgia

Key Theme – Aquaculture

- a. The major objective of the research was to conduct field experiments to evaluate the economic and biological feasibility of sustainable, integrated, small-scale vegetable/aquaculture farms in South Carolina. The researchers continued to support the participants in resolving issues or problems they may face, complete the construction and operation of the experimental aquaponics system in the 1890 greenhouse facility for the purpose of training and prepared to write the final research bulletin. The material requirements for aquaponics system inside the 1890 greenhouse facility was determined and purchased. The participating farmers were provided with greenhouses, a re-circulatory system to cover winter Tilapia fingerlings and grow vegetables and two cages to grow-out approximately 1,000 fish. Additional workshops were conducted at selected farm sites on water quality testing, temperature control, overall management in growing Tilapia and recordkeeping. The researchers were able to demonstrate to participating farmers the material requirements, the cost and benefits of growing fish and vegetables and, at the same time, enhance their knowledge of a creative alternative enterprise.
- b. Impact – The project provided knowledge and experience of a new alternative

farm enterprise to project staff and small scale farmers through technical training and hands-on activities mostly on the farm. There are no other examples of such systems in South Carolina. Some farmers were able to benefit from selling and/or using the fish for home consumption. However, other farmers have not generated income from the system either due to personal health problems and/or other reasons unknown.

- c. Source of Federal Funds – Evans-Allen (\$62,390)
- d. Scope of Impact – South Carolina

Key Theme – Plant Germplasm

- a. The effects of air pollutants such as carbon monoxide (CO), nitrogen dioxide (NO₂) and sulfur dioxide (SO₂) at a concentration of 24 ppm (parts per million) were each studied in sealed glass chambers on germination, water absorption and visible injury of ten commonly grown vegetable seed species in South Carolina. The vegetables were collards, black-eyed peas, mustards, tomatoes, pumpkins, spinaches, lima beans, yellow squashes, eggplants and bell peppers. The maximum germination of 94% was observed in collards, blacked-peas and mustards in a CO and SO₂ environment. Fifty-five percent germination was the highest in spinach species for a NO₂ environment. Nitrogen Dioxide and sulfur dioxide showed noticeable visible injury on seeds by their change in color, but CO showed little or no change in color. The highest water absorption among all experimental seed species was between 330 335% after ten hours of soaking treatment. Collard greens seed species showed the highest water absorption at 160% after 6 – 10 hours of soaking treatments in the CO and NO₂ atmosphere. The research attempts to study the effects of air pollutants on the lipid content of germinating seeds as well. The study of seed lipid was important for the oil that was produced for consumers. Observations received, as of yet, exhibit that the lipid content was promoted in bell pepper seed species by nitrogen dioxide; in black-eyed peas and mustards by carbon monoxide; in bell peppers by sulfur dioxide and in lima beans and spinaches by the control. Results indicated that the lipid percentage ranged from 0.40 to 33.70 % in all seed species.
- b. Impact – The impact of the project was far-reaching. The farmers were not able to determine the loss in seeds and seedlings of vegetable species unless research of this magnitude can reveal such a loss. Pollutants such as NO₂ and SO₂ damaged the seeds more drastically during germination compared to CO. About twenty students were exposed to the research techniques with pollutants, since the project started. Three students presented papers and/or posters at professional meetings, such as the 1890 Biennial ARD Symposium and Annual South Carolina Alliance for Minority Participation (SCAMP) meetings. The economy in

farming maybe enhanced by the results of the current research by controlling loss in seeds and seedlings as effected by air pollutants.

- c. Source of Federal Funds – Evans-Allen (\$14,355)
- d. Scope of Impact – South Carolina

Goal 2: A safe and secure food and fiber system.

Summary of Impact for Goal 2:

The primary focus for this goal was to provide effective educational programs and trainings to South Carolina citizens and industries which has led to increased knowledge and behavior toward safe food handling practices. The one initiative under this goal is Food Safety and Nutrition. There was a total of 772.5 days or 3.4 FTE reported in areas that are classified under Goal 2. The total number of contacts reported in this goal was 6,401. The breakdown of these contacts is as follows: 2,738 white males, 2,207 white females, 462 black males, 963 black females, 18 classified as other males, and 13 classified as other females. From this group, a total of 171 were classified as limited resource. Accomplishment that were reported to the Clemson University Information Management System show 173 total programs and activities conducted in projects that are classified under Goal 2. There were a total of 2,293 participants who completed these educational programs. Of those completing the programs, 2,139 reported increasing their knowledge as a result of their participation. Of those participants who reported increasing knowledge, 1,454 indicated that they planned to adopt the recommended practices while 145 reported that they adopted or increased the use of recommended practices as a result of the programs. Some of the programs offered carry a certificate of competition. There were 623 participants who received a certificate.

Key Theme - Food Safety

- a. 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.

- b. Impact --

Counties conducted 62 educational programs reaching 879 people. Of this number, 814 reported an increase in knowledge and 550 planned to adopt a recommended change.

Counties reported the distribution of 3 press kits, 5,578 column inches appearing in the printed media, 188 minutes of television air time, and 188 minutes of radio air time in the areas of food safety and nutrition.

The SC Department of Agriculture only analyzes approximately 10-15 samples of fruits and vegetables a week because of the labor intensive work required for extraction methods. It is necessary to evaluate the effectiveness of disposable pipette extraction for the analysis of pesticides in fruits and vegetables.

Disclosures:

1. "Carbon Dioxide Gas into Ground Meat"
2. "Protein Films as Blockers of Ultra-Violet Wavelength"
3. "Antibody-linked nanoparticles to detect & eliminate bacteria" Dawson,
4. "Sequencing & PCT Method for GC-rich & Difficult to sequence region by adding Oligonucleotide"
5. "Novel Immunotherapy for Breast Cancer"

Rapid Screening Of Pesticide Residues In Fruits And Vegetables

This research demonstrates the feasibility of disposable pipette extraction (DPX) for rapid extraction of pesticides from fruits and vegetables. Further testing of field samples from the Department of Agriculture (DA) will ensure the validity of this method for rapid analysis of pesticides. It is believed that future implementation of DPX will permit the DA to screen more samples for pesticide residues to ensure the safety of foods for public consumption. Another impact from this research is that chlorinated organic solvents are not used in this method. Currently, the DA uses over 240 mL of chlorinated organic solvent to perform the analysis of one sample of fruit or vegetable, and this solvent is evaporated into the atmosphere. This research should permit the DA to perform these analyses without any chlorinated organic waste and minimal organic solvent waste. This will help improve the environment as well as save money from waste disposal costs.

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

Key Theme - Food Handling

- 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.

b. Impact --
A total of 623 food handlers participate in a 10-hour certification course in food handling and passed an exam to receive a certificate. A more in-depth version of ServSafe was offered to managers and 132 food service managers passed a national exam and were certified. Counties report that while teaching ServSafe \$2,517- was generated in program support and 747 volunteer hours were logged.

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

d. Scope of Impact – State
Key Theme - Food Quality

a. Interest continues to be high for information on a home-based food processing business. Contact with food processing industry was done through workshops, industry meetings, and individual contacts with growers, shipper, or processors.

b. Impact -
A total of 50 educational programs were conducted reaching 563 commercial food processors. Of this total number, 530 report adopting or increasing uses of the recommended practices. There were 53 new or value-added food products or packages entering the market as a result of the program.

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

d. Scope of Impact - State

Key Theme: Focus Area 251: Food Safety, Security and Quality

Statement of the Issue

According to Healthy People 2000 Food Safety Objectives (1995), food-borne illnesses in the United States have led to a major cause of economic burden, human suffering and death. Food-borne diseases, even though their causes and effects are better understood today, remain that emerging risks need to be monitored for several reasons: (a) the food supply of the United States is changing dramatically, especially the conditions under which animals are raised; and (b) consumers are changing, to include an increasing number of elderly or immune-suppressed persons who are at higher risk of severe illnesses, which may cause diseases that were unrecognized 50 years ago. It is estimated that 6.5 to 33 million people become ill from microorganisms in food each year, and an estimated 9,000 of these individuals die as a result. According to a 1998 report released by the United States Department of Agriculture, \$5.2 to \$28.2 billion was spent for food-borne illnesses from meat and poultry.

Performance Goal

The purpose of this project is to provide a nutrition education intervention program to help food

stamp recipients and low-income individuals (based on the poverty guidelines provided by the Federal government). The intervention encourages recognition and adoption of practices recommended by the United States Dietary Guidelines for Americans and the Food Guide Pyramid to foster a healthy diet while improving the participants' overall quality of life. Participants are learning how to improve safe food handling practices when preparing and storing food in the home and enhancing their thrifty food shopping skills in preparing healthy low cost meals. The program utilizes a curriculum entitled: Families First – Nutrition Education and Wellness Systems (FF-NEWS). The curriculum was developed by a multi-state collaboration involving Texas, Oklahoma, Arkansas, and Louisiana.

RES1: (Genetic Evaluation of Insect Responses to Integrated Pest Management

Techniques)

The overall goal of the research is to evaluate the likelihood that resistance to integrated pest management techniques using pheromones will evolve among target species. The specific objectives were to identify and quantify genes involved in pheromone synthesis and perception in *Drosophila melanogaster*, a species closely related to many pests. A genetic analysis of the production and perception of pheromones will provide 1) direct information about the genetic mechanisms of pheromone regulation and 2) indirect evidence about the evolution of resistance to pheromonal control measures. The fruit fly, *Drosophila melanogaster*, is being used for analysis.

Output Indicators

One hundred thirteen clients participated in 21 workshops and educational programs using FF-NEWS. Eighty-seven were African-American, 18 White and 8 Hispanic. Ninety-five percent surveyed were female and 5 percent male.

RES1: (Genetic Evaluation of Insect Responses to Integrated Pest Management

Techniques)

- 1) The Mapping of genes' location and pheromone variations.
- 2) The extent of resistance to pheromone-based control measures.
- 3) The researcher did not attend any conferences/meetings to exchange information.
- 4) No publications or presentations were made during this report period.

Outcome Indicators

Ninety-five percent of participants increased their knowledge of Food Safety, Security, and Quality. Eighty-five percent of participants demonstrated proper food safety and sanitation practices. Ninety percent of participants promoted positive food safety practices within their community.

RES1: (Genetic Evaluation of Insect Responses to Integrated Pest Management

Techniques)

The project has been completed. The researcher is in the process of writing the final research

performance bulletin.

Key Program Components

RES1: (Genetic Evaluation of Insect Responses to Integrated Pest Management Techniques)

The study allowed an assessment of the complexity of the genetic system regulating the characters in flies and indicated the likely strength of evolution to resistance to integrated pest management (IPM) techniques that involved pheromones. The crosses designed to isolate segments of the X and third chromosomes have been completed and the stocks have been analyzed. One segment of the X chromosome, a short region located between forked bristles (56.7) and carnation eyes (62.5) contains at least one gene that affects pheromone production. Another segment of the third chromosome, between hairy wings (26.5) and scarlet eyes (44.0) also affects pheromone regulation. Both of the genes increased by about two-fold the amount of one of the two major cuticular pheromone components of males, but have no effect on the other. The genes in the chromosomal segments interact, so the combined effect is greater than would be expected from the sum of the two segments.

Internal and External Linkages

Allendale Department of Health and Environmental Control

RES1: (Genetic Evaluation of Insect Responses to Integrated Pest Management Techniques)

The Department of Biological Sciences

Target Audience

Adults (ages 18 - 45)

RES1: (Genetic Evaluation of Insect Responses to Integrated Pest Management Techniques)

Pesticide management researchers and applicators using genetic methods of pest control.

Program Duration

RES1: (Genetic Evaluation of Insect Responses to Integrated Pest Management Techniques)

The research project was scheduled for termination on May 30, 2003. However, the project was extended six months until December 1, 2003.

Impact

Participants expressed an increased knowledge of food safety. Participants stated that they were not aware of the harmful bacteria that resulted from improper food handling practices.

RES1: (Genetic Evaluation of Insect Responses to Integrated Pest Management Techniques)

The research showed a complex basis for pheromone production in fruit fly males. Nonetheless, it was apparent that single genes have significant effects on pheromone production. Should appropriate genetic variation exist, pheromone differences could evolve rapidly. Whether this would effect IPM depends on the correlated evolution of pheromone perception by females.

Goal 3: A healthy, well-nourished population.

Summary of Impact for Goal 3:

Efforts in Goal 3 were also reported under the Food Safety and Nutrition initiative. The objectives of the goal focused on participants making healthy food choices; developing skills in procurement of food for good health; and demonstrating skills in preparing food – emphasizing healthy preparation techniques. There was a total of 9,222.0 days or 40.1 FTE reported in the project area classified under Goal 3. The total number of contacts reported in this goal was 138,960. The breakdown of these contacts is as follows: 16,942 white males, 30,488 white females, 30,440 black males, 58,180 black females, 1,112 classified as other males, and 1,798 classified as other females. From this group, a total of 88,254 were classified as limited resource. Accomplishment that were reported to the Clemson University Information Management System show 13,566 total programs and activities conducted in the project classified under Goal 3. There were a total of 96,683 participants who completed these educational programs. Of those completing the programs 47,292 reported increasing their knowledge as a result of their participation. Of those participants who reported increasing knowledge, 10,918 indicated that they planned to adopt the recommended practices while 4,486 reported that they adopted or increased the use of recommended practices as a result of the programs.

Key Theme – Human Nutrition

- a. 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.
- b. Impact --
Counties conducted 61 educational programs reaching 851 people. Of this number, 795 reported an increase in knowledge and 532 planned to adopt a recommended change. Counties reported the distribution of 3 press kits, 5,577 column inches appearing in the printed media, 187 minutes of television air time, and 187 minutes of radio air time in the areas of food safety and nutrition.

Disclosures:

1. "Thermally extruded/pressed soy flour films"

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

d. Scope of Impact – State and Regional

Key Theme - Human Nutrition

a. The nutrition education programs focused on the topic of preventing chronic disease through eating according to the Food Guide Pyramid and Dietary Guidelines. A variety of methods were used including day camp, demonstration contest, workshop, health fair, school enrichment, food demonstrations, exhibits and media.

b. Impact -

EFNEP Nutrition Education Assistants (NEA's) conducted 3,886 educational programs in nutrition and health reaching 13,403 adults; 10,702 of these reported gaining knowledge, 2,439 planned to adopt a recommended practice, and 2,014 reported adopting a recommended practice. There were 1,885 hours of volunteer time contributed to EFNEP.

NEA's and Agents with Food Stamp Nutrition Education (FSNE) responsibilities conducted 8,694 programs in nutrition and health reaching 97,487 adults. As a result of these programs 74,628 persons participated in and completed the program. 29,450 participants reported an increase in knowledge, 5,713 planned to adopt a recommended practice, and 1,222 reported adopting a recommended practice. As well as those completing the program, 2,375 persons were reported as non-program contacts (phone calls, office visits, farm visits, etc.). There were 3,511 hours of volunteer time contributed to FSNE adults.

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

d. Scope of Impact - State

Key Theme - Human Nutrition (Youth)

b. Impact -

EFNEP Nutrition Education Assistants (NEA's) conducted 5,364 educational programs in nutrition and health reaching 28,844 children and youth. There were 3,430 hours of volunteer time contributed to 4H EFNEP.

NEA's and Agents with Food Stamp Nutrition Education (FSNE) responsibilities conducted 1,452 educational programs in nutrition and health reaching 6,009 children and youth. There were 2,492 hours of volunteer time contributed to educational programs for the FSNE children and youth.

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

d. Scope of Impact - State

Key Theme Focus Area 351: Nutrition, Education, Diet and Health

Statement of the Issue

According to the Centers for Disease Control, 55 percent of U.S. adults who are 20 years of age or older are overweight or obese and 10 percent to 15 percent of young people six to 17 years-old are overweight. The percentage of young people who are overweight has more than doubled during the past 30 years and obesity in the U.S. increased from 12 percent in 1991 to 18 percent in 1998.

The Department of Health and Environmental Control Report on the Impact of Obesity on Health in South Carolina reported that in 1998, South Carolina ranked 10th highest in the nation for self-reported rates of overweight and obesity. Rates of overweight and obesity are highest in minority groups affecting approximately 65 percent of African Americans, 51 percent of Hispanics and 64 percent of Native Americans. Minority women and medically underserved communities are at particularly high risk. Obesity and obesity related conditions cost the state of South Carolina an estimated \$177 million in 1997.

Good nutrition is essential for growth and development, and the overall health and well-being of citizens. Behaviors to promote good health should start early in life and continue with the development of healthy eating habits. While the average daily intake of fruits and vegetables consumed by Americans -- and the proportion of the population meeting the dietary guidelines for fruits and vegetables has risen, only 35 percent of the population meets the goal of eating five servings of fruits and vegetables a day. Intake of total fat, saturated fat, cholesterol and sodium remains above recommended levels. Calcium and iron intake remain below recommended levels for many population groups.

The five leading causes of death in the U.S. are heart disease, some types of cancer, stroke, diabetes and coronary artery disease. Diet plays a role in a person's risk of hypertension, high blood cholesterol, and Osteoporosis and gallbladder disease. Experts estimate that unhealthy eating and physical inactivity are responsible for more than 300,000 premature deaths each year in the United

States. Only tobacco use causes more preventable deaths in the country.

Health officials have found that diet is a key determinant of health and an important contributor to chronic disease and premature death. Although progress has been made in improving the U.S. population's diet during the past few decades, a large gap exists between consumers' eating practices and public health recommendations. Lifestyle changes such as reducing fat intake and increased physical activity could help reduce the number of deaths attributed to poor health in South Carolina and across the United States.

Promoting lifestyle changes, providing health education and nutrition education intervention to food stamp recipients and low-income individuals is a priority for the Family Life Program at South Carolina State University. The overall mission is to establish a healthy well-nourished population through research and education. Promotion of positive lifestyle behaviors can deter the prevalence of obesity in pre-adolescents, teens and the elderly.

Performance Goal

Food Stamp Nutrition Education Program (FF-NEWS)

The purpose of this project is to provide a nutrition education intervention program to help food stamp recipients and low-income individuals (based on the poverty guidelines provided by the Federal government). The intervention encourages recognition and adoption of practices recommended by the United States Dietary Guidelines for Americans and the Food Guide Pyramid to foster a healthy diet while improving the participants' overall quality of life. Participants are learning how to improve safe food handling practices when preparing and storing food within the home, while enhancing their thrifty food shopping skills in preparing healthy low cost meals. The program utilizes a curriculum entitled: Families First – Nutrition Education and Wellness Systems (FF-NEWS). The curriculum was developed by a multi-state collaboration involving Texas, Oklahoma, Arkansas, and Louisiana.

RES1: Assessment of Nutrition and Exercise Behaviors of Preadolescents

Childhood obesity is epidemic in the United States and its impact is debilitating, if left untreated. It is well documented that the etiology of obesity is multi-factorial. Therefore, childhood intervention projects must be assessed in the environment in which it exists. The project assessed the nutrition and exercise behaviors of 125 preadolescents ranging from ages 10-12 in Bamberg, Calhoun and Orangeburg counties. The objectives of the project are to: 1) Determine preadolescents knowledge and understanding of the dietary guidelines for fat, calories, cholesterol, fiber, calcium and sodium; 2) Determine the degree to which preadolescents are following the recommended dietary guidelines; 3) Examine preadolescents perception of health risks associated with intake of excess dietary fat, sodium and calories; 4) Determine the prevalence of obesity in preadolescents in Bamberg, Calhoun and Orangeburg counties; 5) Identify constraints to and motivating factors for developing healthy lifestyle behaviors; 6) Develop and pilot test a nutrition and exercise intervention program for preadolescents in Bamberg, Calhoun and Orangeburg counties

to promote positive lifestyle behaviors which may prevent the development of chronic diseases later in life; and 7) Develop a nutrition extension service activity with 1890 Extension Service.

At the local, state and national levels, it is well documented that obesity is a major public health issue that must be addressed by all levels of government, if society is to have a good quality of life in later years and reduce health care spending for conditions exacerbated by obesity.

Output Indicators

In Orangeburg County, food and nutrition education programs were provided to 774 clients who participated in workshops and educational programs using the FF-NEWS curriculum. Seventy-two workshops were held and 844 educational handouts were distributed to clients. Fifty-six percent of the participants surveyed were female with 44 percent males. Of the total participants, 749 were African American and 25 were Caucasian.

The primary sites of intervention included the South Carolina Department of Social Services (SCDSS) Offices in Calhoun, Barnwell and Orangeburg by referral. Secondary sites included Orangeburg, Calhoun, Allendale, Bamberg Community Action Agency, Inc. (OCAB), Orangeburg Area Development Center (OADC) and Calhoun County Council on Aging (CCCOA). The target audiences consisted of children (3-5 years of age), youth/teen (9-15 years of age), adults (18- and above) and seniors (55 and above). All of the above met the federal guidelines as specified by SCDSS for eligibility of services.

Also, in Orangeburg County, 16 clients participated in 4 workshops on FF-NEWS. This program was conducted with senior citizens in the Bowman community. The FF-NEWS program allowed the seniors to learn better food handling practices and information about eating healthier foods. The importance of purchasing and preparing food was also discussed. Attending the workshops were 12 African-Americans and 4 Caucasians. Sixty-nine percent surveyed were female and 31 percent males. These trainings were done in conjunction with the Orangeburg County Department of Health and Environmental Control.

In Marlboro County, seven workshops on FF-NEWS were conducted with 294 clients. One hundred eighty six were African American, 15 White and 23 Native American. Eighty-seven percent surveyed were females and 13 percent male.

In Hampton County, 837 clients participated in 12 workshops on FF-NEWS. Five hundred seventy two were African American, 217 Caucasian and 48 Native American. Ninety percent surveyed were female and 10 percent male. The collaborators were the Department of Health and Environmental Control (Allendale, Hampton, Barnwell, and Jasper counties), Allendale County Schools, Allendale Parks and Recreation Department, Jasper Elementary School, Colleton County Council on Aging.

RES1: An Assessment of Nutrition and Exercise Behaviors of Preadolescents

- 1) A multi-stage sampling technique was used to collect data. Two sixth grade physical education classes in each school were randomly selected (from 3-5 possible classes). The students were also randomly selected.
- 2) A random selection of students, from two sixth grade physical education classes, were studied in each school.
- 3) Constraints were identified for motivating factors of developing healthy lifestyle behaviors.
- 4) One publication was developed for the reporting period.
- 5) Five paper presentations were made as well as three poster sessions
- 6) Four student health educator assistants were involved with the research. The students assisted in data collection, coding data as well as other assigned duties.

HE1: An Assessment of Nutrition and Exercise Behaviors of Preadolescents

- 1) Four B. S. students and one graduate student were involved with the research.

Outcome Indicators

The data analysis from Orangeburg County using the FFNEWS program showed that 71 percent of the participants were not currently using the Food Guide Pyramid (FGP), with 155 participants stating they would use the FGP if given to them. Ninety percent of the participants questioned showed that they would like to learn more about how to prepare a healthy diet. Yet, only 48 percent stated that they read the nutrition facts label for information.

In Marlboro County, 80 percent of the participants gained knowledge through the workshops. Seventy-five percent of the participants adopted health practices.

Eighty-five percent of the participants in Hampton County showed an increase in knowledge about nutrition, diet and health. Ninety-five percent of program participants adopted healthy lifestyle practices. Ninety percent of program participants adopted dietary analysis and nutritional assessment plans.

Impact

After intervention, analysis of impact showed that 70 percent of participants thought about healthy food choices when deciding what to eat or what to feed their families versus 9 percent, which rarely thought about healthy food choices. Fifty seven percent stated that they use the Food Guide Pyramid most of the time when planning meals with 35 percent using the Food Guide Pyramid sometime for meal preparation. Seventy percent reduced the amount of salt used when preparing foods versus 9 percent that stated they rarely limit the amount of salt when preparing meals. Seventy eight percent stated they included fresh fruit and vegetables as part of their daily diet versus 4 percent that stated they rarely included them in their diet. Forty eight percent stated that they try at least 2 or more new foods a month versus 9 percent that stated they rarely tried new foods. Seventy four percent washed their hands in soapy water for at least 20 seconds before

handling food versus 5 percent that rarely washed their hands, a total of 53 percent stated that they rarely allowed food to sit on the stove or table for more than two hours versus 13 percent that allowed food to stay out more than two hours. Twenty three percent continued to thaw frozen foods on the kitchen counter or in the sink versus 31 percent who rarely thawed their food in this manner. Forty six percent stated that they occasionally thawed their foods on the counter or in the kitchen sink. Eighty four percent of participants were cleaning their counter and/or cutting board after intervention versus 6 percent that rarely cleaned counters and cutting boards after intervention.

Output Indicators

Thirty clients participated in 4 workshops on nutrition. Twenty seven were African American and 3 Caucasian. Fifty percent surveyed were female with 50 percent male.

Outcome Indicators

All clients adopted information and integrated it into their daily regime and lifestyle.

Impact

Nutrition activities were conducted at the Hunter-Kinard Tyler After School program. This program was a collaboration that was established between 1890 Extension and the school. The activities were conducted to meet the requirements of the 21st century grant funded through the South Carolina Department of Education (SCDE). The activities targeted 3rd and 4th grade students. The activities came from a community nutrition kit.

The activities allowed the children to understand the importance of good nutrition. The nutrition activities also allowed the children to build upon reading and mathematical skills, which is one of the goals of the 21st century grant.

There are many children that are not eating a balanced meal. With the rise of childhood obesity and juvenile diabetes, 1890 Extension decided to target nutrition with the after school program and use the nutrition program to build upon existing skills. The activities conducted through community nutrition activities encouraged children to use the Food Guide Pyramid for food selections, food substitution, as well as making sure that they were adding the correct amount of food to their daily regime from the food groups according to their gender. The children also worked on measuring the amount of food that they eat to make sure that they are receiving the correct amount from each food group. The children also learned the importance of exercise as it relates to their health.

The children participated in other hands-on activities such as the Pyramid relay race. The children were allowed to take pictures of different foods from the food groups and race with their peers to place it in the correct labeled food bag. The team that placed the most correct answers received a prize. The children were also encouraged to complete activities about what they learned with their families. They also received educational handouts to take home to their families. The children really enjoyed the pyramid relay race.

RES1: An Assessment of Nutrition and Exercise Behaviors of Preadolescents

One hundred eighty-three African American males and females between the ages of 10 to 12 participated in the research and were enrolled in health and/or physical education courses. As a result, girls were more likely than boys to exercise at school, and girls chose to exercise at someone else's home more than boys did. Most participants reported some type of aerobic activity as their primary or secondary choice of activity. Across all groups, there was no significant change in the days exercised per week.

Key Program Components

RES1: An Assessment of Nutrition and Exercise Behaviors of Preadolescents

Participants in the study clearly identified several factors in the community that are deterrents to weight loss and good eating habits. Therefore, partnerships must be formed at the local, state and national levels with individuals, businesses, and all stakeholders who are directly and indirectly responsible for the community's food supply. High levels of biochemical indices of obesity in rural preadolescents were evidenced in the project. However, the trends can be reversed with proper intervention programs that target weight management with emphasis on diet and exercise participation.

Internal and External Linkages

RES1: The project involved the Department of Family and Consumer Sciences and school districts within Orangeburg, Bamberg and Calhoun counties. External linkage was established with the National Institute of Health (NIH) and the University of South Carolina.

Targeted Audiences

RES1: Youth between the ages of 10-12

Program Duration

RES1: The research project terminated in May 2003. However, a subcontract with the University of South Carolina to address obesity and type II diabetes was provided with the National Institute of Health (NIH).

Key Theme: Human Nutrition and Obesity

- a) The effects of an exercise and nutrition program on the following variables, body mass index (BMI), body fat percentage (BF%), blood pressure (BP), blood cholesterol (BC), self-esteem (SE), and exercise behaviors, of sixth graders in four randomly selected rural southern middle schools were studied.
- b) Impact – Diet and exercise are essential to a healthy lifestyle and should be encouraged and supported early in life. Intervention projects that are designed to promote healthy diet and exercise in rural areas must assess community assets to ensure that the community intra-structure will support sustained activities for healthy lifestyles.

- c) Students who were enrolled in the program have contacted research staff to come to their new schools to help start a nutrition and exercise program. Also, one year after the program, principals and teachers, at participating schools, have notified us that the children have shown greater interest in nutrition and exercise and are trying to sustain what was initiated. Within a one year period after the program, a contact teacher at one of the intervention schools reported that one student lost 100 pounds as a result of participating in the research program. The student was motivated and continues her efforts to follow the program.
- d) Source of Federal Funds – Evans-Allen (\$34,040)
National Institute of Health (NIH) (\$85,000)
- e) Scope of Impact – South Carolina

Goal 4: Greater harmony between agriculture and the environment.

Summary of Impact for Goal 4:

Programs under Goal 4 are focused on five major initiative areas: 1) Sustainable Forest Management and Environmental Enhancement; 2) Environmental Horticulture Education; 3) Reducing the Impact of Animal Agriculture on the Environment; 4) Natural Resources and the Environment; and 5) Household and Structural Pest Control and Pesticide Training.

There was a total of 9,307.5 days or 40.5 FTE reported in the areas classified under Goal 4. The total number of contacts reported in this goal was 139,237. The breakdown of these contacts is as follows: 67,715 white males, 56,988 white females, 7,431 black males, 6,078 black females, 552 classified as other males, and 473 classified as other females. From this group, a total of 1,750 were classified as limited resource. Accomplishment that were reported to the Clemson University Information Management System show 2,354 total programs and activities conducted in projects that are classified under Goal 4. There were a total of 51,195 participants who completed these educational programs. Of those completing the programs, 40,205 reported increasing their knowledge as a result of their participation. Of those participants who reported increasing knowledge, 21,095 indicated that they planned to adopt the recommended practices while 3,943 reported that they actually adopted or increased the use of recommended practices as a result of the programs.

Key Theme - Forest Crops

- a. Many landowners fail to manage their forestland because they object to clearcutting 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 clearcutting 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. We expect to submit the proposal for funding in 2003, and to use funds to expand formal training to a meaningful level 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.

- 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.

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

Key Theme - Forest Crops

- 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 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.

- b. Impact --

A total of 17 activities and programs were reported by county agents. 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 reporting increased knowledge from the programs. Twenty-eight landowners reported potential earnings of \$275,000 from information gained at pine thinning training sessions.

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

Key Theme - Forest Resource Management

- 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.

Formal Master Tree Farmer programs were not conducted in 2003, but will resume in 2004. Master Tree Farmer graduates attended a variety of related trainings, tours and landowner association meetings.

- 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 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.

The following impacts were reported for 2003.

1. Twelve programs were conducted.
 2. Number of people completing programs was 1,329.
 3. Number of people reporting increased knowledge was 165.
 4. The number of impacted forest acres was 4,580.
- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact - Multi-state

Key Theme - 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.

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.

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

d. Scope of Impact - State

Key Theme - Agricultural Waste Management

- a. A total of 512 staff member days were devoted to increasing the adoption of environmentally sound animal waste handling and utilization systems. Programs were also developed and 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. All poultry and livestock producers are required to obtain 2 hours of continuing education credit per year to maintain certification. Several seminars and field days were developed and presented by the team to provide recertification credits for poultry and swine producers.
- b. Impact - Increase the adoption of Environmentally Sound Animal Waste Handling and Utilization Practices.

By law, all livestock and poultry producers are required to attend the Confined Animal Manure Managers Program. In 2001-2002 the poultry version was initiated and 328 poultry producers received training in 2002 at 7 locations. Additional training sessions have been planned for 2003 for swine, poultry, and dairy producers. The teaching team is currently revising the swine and poultry training manuals to reflect recent changes in the SC Animal Waste Regulation. A dairy manure-training manual is being developed.

During 2003-03, there were 48 activities conducted in South Carolina to teach best management practices in manure management. A total of 1,246 producers participated in these activities. Of these, 600 reported an increase in their knowledge on the subject. One hundred and sixty seven individuals indicated that they plan to adopt new manure management practices while 60 indicated that new BMP's are already in place.

A total of 373 individuals received information on environmentally sound manure management practices by way of one-on-one contacts, such as telephone calls, farm visits, and office consultations.

The total number of new publications generated by our program team was 11, and the Confined Animal Manure Management Program web site was completely updated.

The total number of individuals that directly received information or assistance from our initiative team was 2,030. However, many more received information through publications and visits to the Confined Animal Manure Managers web site.

U.S. Patents Issued:

(divisional patent) System & Process for Treating Waste Water

Research Publications: 4
Popular Press Research Articles: 4

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

Key Theme – Water Quality and Quantity

- a. 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.
- b. Impacts
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 secchi disk, calculate water clarity, and learned about the water cycle.
- c. Source of Federal Funds - Smith Lever 3b&c
- e. Scope of Impact – State

Key Theme – Natural Resources Management

- a. Conducted 72 Master Wildlifer/Master Naturalist programs and activities. 1,311 people completed these programs, with 1,055 reporting an increase in knowledge. An additional 1,552 persons received information by phone, office, or farm visits. Conducted a Master Wildlifer Satellite Course with 39 landowners graduating.
- 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.
- c. Source of Federal Funds - Smith Lever 3b&c

d. Scope of Impact – State

Key Theme – Alternative Income Opportunities for Landowners

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

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

d. Scope of Impact – State

Key Theme ~~W~~Other (Plant Health)

- a. The plant health area focused on three major projects during FY 2003. These projects were Environmental Horticulture Education for Horticulture Professionals, Master Gardener Education and Impact, and Consumer Education in Environmental Horticulture.

b. Impacts

For the project Environmental Horticulture Education for Horticulture Professionals, an Environmental Landscape Conference was held in Columbia, SC with 100 green industry professionals and Extension agents participating.

Two training sessions were held relating to Environmental Horticulture Education that targeted County Agents and Master Gardeners who could then serve as multipliers by educating horticulture professionals and consumers. The program Landscaping for Energy Efficiency was held in Columbia, SC with 13 County Agents and 1 Master Gardener attending. SC Horticulture Certification Programs, also held in Columbia, had 12 County Agents and 1 Master Gardener in attendance.

For the project area of Environmental Horticulture Education for Horticulture Professionals, a total of 284 programs (104 of which were joint educational efforts with other agencies) were delivered to 6,098 participants with 4,241 participants reporting increased knowledge, 2,389 planning to adopt new practices and 691 adopting new practices. There were 97 newsletters or trade journal articles prepared. Personal contacts through telephone, office, and site visits totaled 2,456. The activities and programs of this project were accomplished through the input of 3.42 FTE.

Impacts:

The Master Gardener Education and Impact project included the delivery of 508 programs dealing with plant health issues with 9,490 participants. Participants in these programs reporting an increase in knowledge were 7,972 with 3,170 planning to adopt new practices and 242 adopting or increasing use of plant health management practices. This year, 1,767 residents were trained to become Master Gardeners. These trained Master Gardeners contacted 37,011 individuals and contributed 33,919 hours of service. Master Gardener volunteers contributed 186,737 miles of travel. The activities and programs of this project were accomplished through the input of 3.90 FTE.

For the project of Consumer Education in Environmental Horticulture, 506 activities or programs were conducted with 12,183 participants, 10,112 of which reported increased knowledge, 6,731 planned to adopt new practices and 284 reporting practice adoption. There were 9,651 mass media activities. Plant health demonstration sites were visited by 10,755 consumers. There were 46,404 personal contacts through telephone, office, and site visits and 32,690 consumers received plant health management information through the Urban Horticulture Center at the Riverbanks Zoo, the Home & Garden Information Center, and the PAWS Horticulture Line. Extension web sites containing information on environmental horticulture reported 1,383,074 user/visitor sessions. The activities and programs of this project were accomplished through the input of 7.27 FTE.

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

Key Theme – Pesticide Safety Education Program - Initial Certification for Private Applicators

- 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.

In FY 2003 in South Carolina, 57% of the trainees answering the use demographic 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

- 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. Of trained who voluntarily answered the race demographic survey question, 60% were white, 6% were black, 1% were other. Proportions for race were changed from FY 2001, FY 2002 with more whites than blacks attending trainings. Of those who answered the sex demographic survey question, 93% were male and 4% were female. This is a strong departure from the 62/36 percentages for sex in FY 2002, but close to the 90/10 percentages in FY 2001 . In FY 2003, of those trainees responding, 47% were 40-59 years old (45% in 2002).

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).

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

Key Theme – Pesticide Safety Education Program – Recertification for Private Applicators

- a. 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.)
- b. Impact -
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.

This year County Extension offices conducted a minimum of 13 (8 in FY2002)* Recertification trainings. An unknown number of applicators were trained this year who obtained 1 – 5 Recertification credits.

*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. Peak numbers of applicators recertified will occur in FY 2004.

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

Key Theme – Pesticide Safety Education (Combined programs)

- a. While pesticide applicators are trained by the Cooperative Extension Service to become initially certified as Private Applicators, Extension also provides Recertification training for licensed applicators. However, Extension also 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 FY 2003 in South Carolina there were a minimum of 74 reported pesticide safety education and training programs combined. A minimum of 1,515 individuals (presumed to be mostly Private Applicators and P.A. trainees) were reported to complete educational programming. A minimum of 1,242 of these individuals reported increasing their knowledge and 253 reported they planned to adopt new practices. A minimum of 124 individuals reported that they did adopt new practices. A minimum of 253 individuals were reported to have received pesticide safety 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: Water Quality

Drinking water is the most important substance that we consume daily. Therefore, its cleanness and purity from toxic materials is of utmost consideration. The research project, “A Thorough Assessment of Toxic Chemical and Remediation of Drinking Groundwater Sources in Rural Areas”, is interested in improving the productivity and well being of the citizens in South Carolina. In rural areas of South Carolina, particularly in Orangeburg and vicinities, well water is used as a major source of drinking water. In 1999, the Department of Health and Environmental Control reported 115 documented cases of groundwater contamination in Orangeburg County alone. Local wells are fed by local ground stream or ground rivers passing throughout the sites. The ground water reserves are interconnected, consequently any contamination could easily be transported from one site to other places. As a result, a neighborhood far away from a contaminated place may have contaminated ground water.

The characteristics of the contaminants vary from source to source. Some wastes contain radioactive elements, others are corrosive, some are flammable or volatile, and others have disease-bearing organisms (hospitals and labs wastes). The main water toxic chemicals are radioactive elements, heavy metals, nitrates, organic volatile and organic aromatics.

Important sources of ground water contamination include landfills, surface impoundment, mining activities, oil and gas exploration, waste injection wells, pesticide and herbicide use, underground storage tanks, and septic tanks. In 1980, the EPA estimated that up to ninety thousand land disposal sites were contaminating ground water and surface waters.

Performance Goal

The aim of the research is to analyze drinking water of various representative rural houses by sampling the water sources and testing for hazardous chemicals. The project will test for contamination in the target rural areas. The source of contamination will be identified. A methodology to clean up and restore ground water and drinking water resources to an acceptable level will be developed. In addition, rural residents will be trained and educated on prevention methods to ensure that drinking water is clean and toxic-free.

Output Indicators

- RES1:** 1) A considerable amount of time was spent for the purchase, installation and calibration of purging-trap-Gas Chromatography/Mass Spectrometer to be used in detecting and quantifying volatile organic compounds. Two business locations were visited to get samples, but they refused; indicating that their water was fine and did not need any testing. Approximately twenty-five ground water samples were assayed from various locations in Orangeburg County and found that the waters were free from volatile

organic compounds. Samples from municipal water systems were assayed. As a result, one sample was polluted with chloroform, a carcinogen. We have requested more samples from that source.

- 2) Training was provided to two students in order to use the instrument(s) needed to detect possible chemical pollution. In addition, the students are responsible for helping to collect samples and prepare distilled water, etc.
- 3) There have been no publications made during the 2002-2003 reporting period. One poster presentation was made at a biennial meeting.

Outcome Indicators

RES1: 1) Twelve samples were randomly taken from wells, located at various regions, in Orangeburg County and vicinity. The Environmental Protection Agency (EPA) method 524 was used for preparing the standards and samples alike. The gas chromatography oven temperature range was used. The majority of water samples were clean and drinkable, although some of the samples showed a trace amount of chloroform, benzene and toluene.

Key Program Components

- RES1:**
- 1) Identifying sources of contamination
 - 2) Testing drinking water in targeted rural counties for contamination
 - 3) Develop a clean up methodology
 - 4) Train and educate rural residents on prevention

Internal and External Linkages

RES1: The project involves internal linkages with the Department of Physical Sciences and 1890 Research and Extension. Externally, the research involves the Environmental Protection Agency (EPA), National Institute for Occupational Safety and Health (NIOSH), Department of Fish and Game (DFG) and International Agency for Research on Cancer (IARC).

Target Audiences

RES1: Rural residents of South Carolina with wells

Program Duration

RES1: The research is a three project and scheduled for completion in September 2004.

Key Theme – Natural Resources and the Environment

- a) The goal of the project is to systematically assay samples randomly taken from the drinking well water in Orangeburg County and vicinities to insure the safety of drinking water of the citizens. The objective is to analyze the samples for substances that are more likely present in the rural areas because of chemical use. Also, to educate the populace for hazards that may affect the drinking water sources.
- b) Impact – Rural residents would be better informed about the quality of their drinking water and obtain training and education to ensure that their water quality is at the optimal level. Economically, the research would have great impact by helping prevent illnesses, diseases and disabilities by providing a better managed economy for the residents. Also, the project would provide a reasonable chance for the students to pursue their career with better understanding of environment, pollution and management.
- c) Source of Federal Funds – Evans-Allen (\$44,811)
- d) Scope of Impact – South Carolina

Goal 5: Enhanced economic opportunity and quality of life for Americans

Summary of Impact for Goal 5:

Programs under Goal 5 are focused on three major initiative areas: 1) Community, Leadership and Economic Development (CLED); 2) Families; and 3) 4-H, Youth, and Families. There was a total of 15,487.0 days or 67.3 FTE reported in areas that are classified under Goal 5. The total number of contacts reported in this goal was 307,673. The breakdown of these contacts is as follows: 83,493 white males, 96,733 white females, 54,715 black males, 64,691 black females, 4,060 classified as other males, and 3,981 classified as other females. From this group, a total of 44,737 were classified as limited resource. Accomplishment that were reported to the Clemson University Information Management System show 5,579 total programs and activities conducted in projects that are classified under Goal 5. There were a total of 117,219 participants who completed these educational programs. Of those completing the programs, 83,335 reported increasing their knowledge as a result of their participation. Of those participants who reported increasing knowledge, 35,670 indicated that they planned to adopt the recommended practices while 10,230 reported that they actually adopted or increased the use of recommended practices as a result of the programs.

Key Theme - Children, Youth, and Families at Risk – Later Life

- a. 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 -

In February 2001, a National Strengthening Families and Youth Conference was 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 second national conference, Strengthening Families, Youth and Communities is planned for February 2004.

The focus of the Building Family Strengths program 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.

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. This 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.

There were 739 days reported for this project by Extension personnel across the state. A total of 1,912 white males, 3,624 white females, 1,169 black males, 1,992 black females, 80 other males, 245 other females and 522 limited resource contacted by Extension personnel working in this area. This project is reaching a very diverse audience. In addition there were 249 activities and programs conducted with 4,475 participants completed non-formal education programs. Of those individuals completing programs 4,501 participants reported increased knowledge and 484 participants adopted or increased use of best practices for building strong families.

Research Popular Press Articles: 4

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

Key Theme - Children, Youth, and Families at Risk – Youth Approach

- 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 the recognized as a “model” for team programming by the NAE4-HA and Epsilon Sigma Phi, receiving state and national recognition. In addition, Building Family Strengths has been identified by the CSREES Family Development/Resource Management base program team as a program of excellence.

- b. Impact -
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. 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 installation in the Southeast have adopted the BFS curriculum for use in the afterschool programs and over 500 professionals will receive the training.

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.

Project 120: Building Family Strengths for Later Life

1.	Number of educational programs and activities conducted.	60
2.	Number of people completing educational programs.	1,140
3.	Number of people reporting increased knowledge.	1,004
4.	Number of people who plan to adopt practices.	479
5.	Number of people adopting practices.	176
6.	Number of people receiving information through “non-program” contacts such as telephone, office, and farm visits.	175
7.	Number reached through mass media.	4,500
8.	Number of volunteer hours.	4
9.	Number of people participating in Conflict Resolution/Anger Management programs.	55
10.	Number of people participating in Taking Charge in Challenging Times programs.	68

Project 121: Building Family Strengths – A Youth Development Approach

1.	Number of educational programs and activities conducted.	189
2.	Number of people completing educational programs.	3,605
3.	Number of people reporting increased knowledge.	3,497
4.	Number of people who plan to adopt practices.	885
5.	Number of people adopting practices.	308
6.	Number of people receiving information through “non-program” contacts such as telephone, office, and farm visits.	985
7.	Number reached through mass media.	275
8.	Number of volunteer hours.	88
9.	Number of people participating in Conflict Resolution/Anger Management programs.	111
10.	Number of professionals participating in Train-the-Trainer programs.	0

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

d. Scope of Impact - State

Key Theme - Family Resource Management

- a. 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 and Stability - There were 250 days planned and 333.5 days reported in this project area equaling 1.1 FTE's with a total of 3,156 contacts and 1,914 people participating in 83 educational programs.

1. Number of educational programs and activities conducted.	83
2. Number of people completing educational programs.	1,914
3. Number of people reporting increased knowledge.	1,360
4. Number of people who plan to adopt practices from those who increased knowledge.	321
5. Number of people adopting practices from those who increased knowledge.	92
6. Number of people receiving information through "non-program" contacts such as telephone, office, and farm visits.	1,182
7. Number of people who engage in activities which increase their financial literacy related to later life issues.	677
8. Number of people who initiate or increase contributions to a savings plan.	0
9. Number of people who participate in the Legal Check Up program.	0
10. Number of people set or revise spending, saving, or debt reduction goals.	0
11. Number of people who participate in the Investing for Your Future program.	0
12. Number of people who develop a plan for accumulating, protecting, and distributing/transferring assets.	226
13. Number of people who participate in programs to cope with financial impacts of reduced income (Ex. Taking Charge in Challenging Times)	0

Project 124: Resource Management for Youth - There were 166 days planned and 316 days reported in this project area equaling 1.4 FTE's with a total of 2,789 contacts and 1,993 participating in 203 educational programs.

1. Number of educational programs activities conducted.	203
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| 2. Number of people completing educational programs. | 1,993 |
| 3. Number of people reporting increased knowledge from those completing progs. | 1,524 |
| 4. Number of people who plan to adopt practices from those completing progs. | 683 |
| 5. Number of people adopting practices from those who increased knowledge. | 101 |
| 6. Number of people receiving information through "non-program" contacts such as telephone, office, and farm visits. | 463 |
| 7. Number of participants in the High School Financial Planning program. | 282 |
| 8. Number of participants in the Mini-Society program. | 221 |
| 9. Number of participants in the LifeSmarts program. | 0 |
| 10. Number of participants in a financial program (i.e. – "Money My Way" or "Financial Fitness for Youth" lessons). | 837 |
- c. Source of Federal Funds - Smith Lever 3b&c and some grant funding.
- d. Scope of Impact - State Specific

Key Theme – FCL Volunteer Management and Leadership Development

- a. The purpose of Project 125 FCL Volunteer Management and Leadership Development was 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 2002-03 fiscal year, 562 days were planned in this project area. Seven hundred eighty-three and a half days were reported with 9,544 total contacts. Four hundred programs were conducted with 4,824 people in attendance. Of those completing programs, 3,649 reported an increase in knowledge and 1,875 of those planned to adopt practices. Family and Community Leader (FCL) volunteers conducted 363 programs with other groups and reached 4,853 participants. The dollar amount of program support including time and resources was \$1,772.
- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact - State

Key Theme - Youth Development/4-H (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 178 days planned in this project with 125.5 days reported. A total of 273 white males, 464 white females, 198 black males, 329 black females, 10 other males, 22 other females and 67 limited resource youth were contacted through this project area. There were a total of 46 activities and programs conducted in this project area with 551 youth completing these programs. Of those youth participating, 395 reported an increase in knowledge, 88 reported adopting or increasing uses of practices, and 235 reported they plan to adopt new practices. The 4-H debating contest had 41 participants while 119 participated in public speaking contests with a total of 7 participating in Business Demonstration Contest. A total of 47 Volunteers assisted with these programs.

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

d. Scope of Impact - State

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

- a. American culture has undergone dramatic changes over the past few decades. From an agrarian society with interdependent families, we've become a culture of neighborhoods of strangers. The breakdown of the family unit is also evidenced in the breakdown of community. Youth have little understanding of the responsibilities of citizenship yet know much about their rights. The 4-H program is focused on teaching 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 children in crisis. Local club and county 4-H programs offered numerous opportunities to help others. 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. Youth need experience and training to become 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 increase the ability of youth to develop their personal talents

and their leadership skills. 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. Impact -

There were 1,018 days planned in this project with 1,368 days reported. A total of 5,962 white males, 7,005 white females, 3,882 black males, 4,989 black females, 158 other males, 150 other females, and 859 limited resource youth were contacted through this project. There were 586 activities and programs conducted in this project with 10,027 youth completing these non-formal education programs, 8,448 of these youth reported an increase in knowledge with 3,752 youth reported adopting or increasing uses of practices. A total of 1,322 volunteer hours were also reported.

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

d. Scope of Impact - State

Key Theme - Youth Development/4-H (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 1,696 days planned and 2,278.5 reported for this project. A total of 8,693 white males, 10,487 white females, 15,987 black males, 17,974 black females, 725 other males, 939 other females and including 36,019 limited resource youth were contacted through the 12,641 youth completing these non-formal educational programs. Of those youth completing the programs, 10,754 youth participants reporting an increase in knowledge and 1,339 youth reported adopting or increasing the use of practices with an additional 4,720 youth who plan to adopt recommended practices. There were 5,364 programs conducted through 4-H EFNEP, with a total of 28,844 limited resource youth completing educational programs with the assistance of 3,429.5 hours contributed by volunteers. There were 1,452 programs conducted through 4-H EFNEP, with a total of 6,009 limited resource youth completing educational programs with the assistance of 1,428.5 hours contributed by volunteers

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

d. Scope of Impact - State

Key Theme - Youth Development/4-H (Family & Consumer Sciences)

a. Society has undergone dramatic changes that have affected youth and families. 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. 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 life-time 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 521 days planned for this project and 545.5 days reported. A total of 2,394 white males, 3,987 white females, 1,357 black males, 2,316 black females, 33 other males, 46 other females and 1,547 limited resource youth were contacted through efforts made in this project area. A total of 327 volunteers were also reported as participating in this project area. There were 281 programs and activities conducted with 5,377 youth completing non-formal educational programs. Of those youth participating, 4,087 reported an increase in knowledge while 578 adopted or increased uses of practices and 1,730 planned to adopt practices. There were 179 youth participating in Consumer Judging programs, 321 in Consumer Education classes, and 1,281 in clothing and textiles education classes.

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

d. Scope of Impact - State

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

a. 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 very significant.

b. Impact -

There were 1,251 days planned and 1,670 reported for this project area. A total of 14,552

white males, 14,775 white females, 4,848 black males, 6,446 black females, 385 other males, 388 other females and including 817 limited resource youth were contacted through efforts made in this project area. A total of 1,825 volunteers participated in this project area. There were 645 activities and programs conducted with 23,744 youth completing these non-formal education programs. Of those youth completing the programs 17,449 youth reported increased knowledge while 2,727 youth reported adopting or increasing uses of practices. An additional 7,896 youth completing programs in plant/animal science indicated they plan to adopt recommended practices. A total of 5,699 youth participated in 4-H animal projects while 2,951 youth participated in plant projects.

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

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

- a. Children and youth lack a working knowledge of natural resources and environmental stewardship. Many have no experience in the natural environment or in outdoor recreation activities. The 4-H program seeks to create an awareness of the natural environment. Included in the program emphasis is the understanding of individual and personal responsibility by every citizen to maintain the natural resources and to develop life skills through outdoor recreation activities.
- b. Impact -
There were 715 days planned and 887.5 reported in this project area. A total of 6,200 white males, 4,417 white females, 2,313 black males, 2,263 black females, 159 other males, 168 other females and including 476 limited resource youth were contacted through efforts made in this project area. There were also 409 reported as volunteers. There were a total of 306 activities and programs conducted with 12,002 completing non-formal education programs. Of those youth who completed the programs, 8,450 reported increase in knowledge and 755 adopting or increasing uses of practices. An additional 3,462 plan to adopt recommended practices. In addition there were 3,323 youth reported in county natural resources programs, 3,022 who participated in shooting sports clubs, and 251 youth trained in hunter safety.
- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact -- State

Key Theme - Youth Development/4-H (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.

Safety skills in all walks of life are often taken for granted during the adolescent years. 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 762 days planned and 984.5 days reported in this project area. A total of 5,563 white males, 4,931 white females, 3,365 black males, 4,054 black females, 277 other males, 318 other females and including 1,780 limited resource youth were contacted through efforts made in this project area. There were 337 activities and programs conducted with 14,362 youth who completed these non-formal education programs. Of these youth who completed the programs 12,230 youth reported increase knowledge and 1,206 youth reported adopting or increasing uses of practices. There were also 3,450 youth who completed programs and plan to adopt the recommended practices. A total of 1,888 volunteers were reported in this project area.
- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact - State

Key Theme - Youth Development/4-H (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 209 days planned and 152.5 days reported for this project area. A total of 3,210 white males, 3,564 white females, 1,854 black males, 2,246 black females, 177 other males, and 206 other females were contacted through this program area. There were 68 activities and programs conducted with 8,719 completing non-formal education programs. Of those youth who completed the programs 186 youth reported increase in knowledge and 49 youth reported adopting or increasing uses of practices. There were also 45 who plan to adopt recommended practices. In addition, 474 people were reached in promotion effort of Teaching KATE and 1 teacher received Teaching KATE lesson plans.

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

d. Scope of Impact – State

Key Theme: 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 409 days reported for this project area. A total of were 34,027 contacted through this program area. A total of 139 educational programs were conducted reaching 32,677 youth through overnight programs, in-school programs, and day camps

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

d. Scope of Impact - State

Key Theme: 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 250 days reported for this project area. A total of 13,739 were contacted through this program area. A total of 102 educational programs were conducted reaching 1,501. Of this 70 participants reported increased knowledge, while 35 of these reported that they planned to adopt recommended practices.
- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact - State

Key Themes: 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 63 days reported for this project area. A total of 5,893 were contacted through this program area. A total of nine educational programs were conducted reaching 192. Of this 78 participants reported increased knowledge, and all 78 also reported that they planned to adopt recommended practices.
- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact - State

Key Themes: 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 344 days reported for this project area. A total of 5,212 were contacted through this program area. A total of 86 educational programs were conducted with the 5,212 overnight campers.

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

d. Scope of Impact - State

Key Theme - Community Leadership Development

- 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.

1. CUMIS FY July 2002-03 planned time for Community Leadership Development is 1,217 days. The days reported sum is 1,413.5. The reports indicated that 6,069 white males, 6,636 white females, 1,745 black males, 2,518 black females, 148 other ethnic group males and 197 other ethnic group females received educational programming in leadership development. Of these 461 were limited resource persons. The grand total of leadership program contacts is 17,313.
2. The number of activities and programs totaled 380. The number of individuals completing non-formal education programs in community leadership training was 6,047.
3. The number of participants reporting increased knowledge was 4,893. The number of individuals planning to adopt or increase the use of suggested practices was 3,575.
4. The number of people adopting practices is 472. This means that these 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.

5. The number of people who received information through “non-program” contacts such as telephone, office, and site visits was 2,397.
6. The number of individual completing leadership programs who collaborated with others in the region to address an issue or concern was 884. The Palmetto Leadership program values partnerships and collaboration. The program beneficiary appreciates the modeling of teamwork and support to address their needs.
7. The number of nonprofit organization board members trained was 626. This is a relatively new area of training and is likely to increase in the future.
8. Palmetto Youth Leadership placed 279 youth in personal and community-based projects.
9. An additional 166 youth at-risk were engaged in personal and community-based projects. This is a major increase in youth at-risk program within the context of community leadership development programming.
10. 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 10 years. The program had produced a widely-distributed newsletter. The program sponsored a Palmetto Youth Leadership in the Marion County for academic credit. Col. List, a graduate of Palmetto Leadership directs the effort and graduated several classes of young leaders. Students in the program from Mullins High School participated in the ROPES Course with exercises that required meeting challenges on a ‘cat walk’ suspended 25 feet in the air. 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. Jane Edwards, the Marion County CD Agent, is a key sponsor and stakeholder in the program. The class had 18 young leaders participate.
 - Conducted the DiSC In-Sight profile for Youth Leadership Lexington County program.
 - Conducted a Palmetto Youth Leadership Dorchester program for 30 youth. Each of the counties’ public and private school enrolled six students in the program.
 - 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.
- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact - State

Key Theme - 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. A reported 178 days of planned time was dedicated to economic development. Actual days reported totaled 236.5. The audience comprised 1,681 white males, 1,180 white females, 598 black males, 644 black females, 81 other ethnic group males, and 68 other ethnic group females. Twenty-seven individuals receiving programs were in the limited resource category. The grand total of contact was 4,252 persons.

2. There were 64 economic development programs were reported for the year.
 3. The number of individuals completing education programs was 1,728.
 4. The number of individuals reporting increased knowledge was 605.
 5. The number of individuals who plan to adopt economic development practices was 460.
 6. The number of individuals who actually adopted practices was 8.
 7. The number of individuals who received information through “non-program” contacts such as telephone, office and site visits was 863.
 8. The number of community leaders who participated in BR&E task groups was 93.
 9. The number of collaborative efforts to enhance BR&E totaled 90 linkages.
- c. Source of Federal Funds - Smith Lever 3b&c
- d. Scope of Impact - State

Key Theme – 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 –

1. During the past year, extension educators planned 174 days to conduct public issues education programs.
2. The actual reported time allocated to public issues education programs was 200 days during the past fiscal year.
3. The audience for these programs included 1,148 white males, 1,482 white females, 2,251 black males, and 1,306 black females, 79 males from other ethnic groups, and 36 females from other ethnic groups. A total of 911 limited resource persons received public issues education programs. The total number of contacts was 6,302 people.
4. The number of public issues educational programs conducted was 143 during the past fiscal year.
5. The number of individuals completing public issues education programs was 1,770.
6. The number of individuals reporting increased knowledge was 1,392.
7. The number of individuals who plan to adopt practices was 669.
8. The number of individuals adopting practices was 34.
9. The number of individuals receiving information through “non-program” contacts such as telephone, office, and site visits was 1,238.
10. The number of facilitated public meetings addressing public issues was 57.

11. The number of public appearances used to promote understanding of public issues was 65.
 12. The number of printed materials used to promote understanding of public issues was 358.
- c. Source of Federal Funds - Smith Lever 3b&c
 - d. Scope of Impact - State

Key Theme - Marketing Place – 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.

- b. Impacts –
 1. The Marketing Place – Community Enhancement program area had 763 days of planned activity during the past fiscal year.

2. The actual number of project activity days reported is 1,145.
3. 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.
4. The audience and participants in the community enhancement arena number 5,344 white males, 5,230 white females, 1,816 black males, 1,940 black females, 62 other ethnic group males, and 85 other ethnic group female. The number of limited resource participants is 169. 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.
5. The number of educational programs and activities conducted was 217.
6. The number of individuals completing education programs in the area of community enhancement and improvement was 2,410.
7. The number of individuals reporting increased knowledge was 1,634.
8. The number of individuals who plan to adopt practices associated with community enhancement and improvement was 708.
9. The number of individuals adopting the practices and actually taking on a leadership position in local organizations is 228.
10. The number of individuals who received information through “non-program” contacts such as telephone, office or site visits was 2,838.
11. The number of collaborating agencies in the task groups was 293 in the state.
12. The number of individuals completing the SC Design Arts Partnership program was 3.
13. The number of individuals who plan to participate in a task group and address a community issue or concern was 0. This figure represents the number of independent program leaders.
14. The amount of funds raised to support local programs and collaborative efforts was \$247,404 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.

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

Key Theme: Focus Area 551: 4-H, Youth and Families

Statement of Issue

In 2002, the poverty level was \$15,020 for a family of three in South Carolina and \$18,100 for a family of four. South Carolina is a mostly rural state where single parent families are likely to be poor. In 1999, 40.2 percent of the children in a single parent household lived in poverty, but in married-couple families only 7.5 percent of the children were poor. Children of single-parent families make up 68 percent of the state's children living in poverty. The educational level of parents is also influencing the success of children. In fact, babies born to mothers with a 12th grade education or less in 2001 were 19.3 percent White and 24.3 percent African-American and other.

High incidences of teen pregnancies and high school dropout rates are inhibiting children in South Carolina from becoming self-supporting adults in society. South Carolina has ranked between 42nd and 48th from 1990 to 2000 in overall well-being of children between the ages of 10 and 17 (Composite Rank Order, Kids Count 2003). This year the state has moved from 48th to 47th with high incidences of teenage pregnancies (births per 1,000 females ages 15-17), the percent of teens who are high school dropouts increased from 9.6 to 11 percent; and the number of children in poverty increased from 21 to 26.9 percent. The data was derived from Kids Count 2003 Data Book Online.

The 1890 Extension 4-H and Youth Development Program provides family and resource management and educational programs to improve the well-being of the family structure. In a continuous effort to help improve the quality of life of youth and families in South Carolina, the Extension Program at South Carolina State University has directed their attention to two focus areas, 4-H youth and families. The two program focus areas include a multitude of youth projects and activities that will help to reverse the negative trends affecting the youth of our state. The projects include: Reading in the Park, Community Action Tutorial, Recreational Skills Involvement, Leadership Skills Development, Day Camps, Life Skills, Financial Planning, Mentoring, and After School Programs.

Performance Goal(s)

EXT1: Because many youth in the state live below the poverty level, the 1890 Extension Program is working to change the educational, social and economic trends to improve communities. 4-H Youth and Families programs are in Hampton, Pickens, Orangeburg, Marlboro and Williamsburg counties to bring about a positive change in the lives of youth. Before positive change can take place, communities are in need of educational programs in parenting skills, financial management and strengthening family values. Through partnerships with local communities and public and private organizations, youth are gaining exposure to real world experiences.

EXT2:

In order to determine the level of assistance needed in the community-based organization, pre and post-tests were given to participants. After School Programs are in place at St. Ann Catholics

Outreach Center, Morrisville Just Say No Club and Paxville Community Center. Community volunteers, Clemson Extension Service, Williamsburg County Sheriff's Office and the Drug and Alcohol Abuse Center, provided seminars on drug and alcohol awareness, nutrition, and health and wellness. Additional collaborations were established with local community centers and businesses, which provided discounts on refreshments for youth. The focus areas included: leadership skills development, youth development, financial planning, day camps and Save the Children. The Hampton, Pickens, Orangeburg, Marlboro and Williamsburg clusters used the focus areas as the purpose for developing targeted youth programs to help reverse the negative trends that South Carolina youth are experiencing.

Output Indicators (Youth Development)

Through the youth projects, Extension Agents have reached 1,994 youth in Pickens County, with 370 youth participating in the 1890 youth development initiative. There were 34 workshops, demonstrations, trainings, and meetings held during the initiative. The youth received 440 educational handouts. In order to make the initiative a success 1890 Extension collaborated with 11 state and local agencies.

Outcome Indicators

Thirty-four youth participated in 34 workshops, demonstrations, training sessions and meetings. Educational information was received by 132 participants who learned team building skills and 35 percent said they will work better with their peers. The ethnic group represented at the youth initiative included 81 percent African-American and 19 percent Caucasian.

Output Indicators (Leadership Skills Development)

The Leadership Skills Development initiative connected with 245 youth from Hampton County and surrounding areas. There were six planned programs in which the participants were provided opportunities for cultural enrichment and participants increased their awareness of diversity. Seven different local and state government agencies collaborated with 1890 to make the programs a success.

Outcome Indicators

Participants in the Leadership Skills Development program attended two workshops, demonstrations, training sessions and meetings. Of the 245 participants, 145 adopted knowledge transfer, this represents 61 percent of the participants. The post-test results showed that 91 percent of the participants increased their knowledge of basic life skills and healthy lifestyles. Ninety seven percent showed an increase in their awareness of cultural diversity. Ninety three percent of the participants increased their understanding of the way in which community involvement can support the family structure.

Output Indicators (Financial Planning)

The 1890 Extension financial planning component sponsored by the National Endowment for Financial Education in partnership with the USDA Cooperative State Research, Education, and

Extension Service, conducted 78 workshops, demonstrations, training and meetings. There were 328 educational handouts distributed to youth on money management, planning for the future, how to write a check and establishing credit. The financial management curriculum was taught to students at Woodland High School, North High School and Clarendon County Department of Social Services.

Outcome Indicators

There were 328 youth who attended 78 workshops, demonstrations, training sessions and meetings. Of the 328 youth, 19 percent adopted knowledge transfer, which equates to 62 students from the program. The recommended practices were adopted by 111 participants, which represented 34 percent of the participants. One hundred and twenty-three participants increased their knowledge, which is 38 percent of the attendees and 12 participants adopted the program. All participants received mentoring or one-on-one assistance while enrolled in the program.

Output Indicators (Day Camp)

The 1890 Extension Day Camp project served 445 youth during a three-week period. There were 38 workshops, demonstrations, training, and meetings held with 60 educational handouts made available for use to clientele. There were seven collaborations established between state and local agencies as a result of the day camps.

Outcome Indicators

The 1890 Extension Program served 447 youth during four different day camp programs. All the participants in the camp adopted knowledge transfer during some phase of the camp. Reports indicate that 355 camp participants had an increase in their knowledge, which equates to 79 percent of the participants. Ninety percent of the participants adopted the educational information provided during the camp. The participants in the day camp received some technical assistance with reading, computer training and math.

Output Indicators (After School Program)

The 1890 Extension Program assisted 600 youth through its after school programs. The after school program collaborated with eight schools and community groups, which resulted in 400 workshops, demonstrations, training sessions and meetings. There were 1,200 pieces of educational materials distributed to the program participants.

Outcome Indicators

The after school programs provided assistance to 600 youths. The youth participated in workshops, training sessions, demonstrations and meetings. All participants gained some knowledge from the information provided to them through the program. Our records indicated that 90 percent of the youth who attended these programs on a daily basis have increased their knowledge and adopted training practices as it relates to their academics and studying habits.

Key Program Components

Leadership Skill Development

Leadership Skills Development assisted youth in personal development, while simultaneously developing respect for the differences of other, as it relates to gender and culture. As a result of personal development, the participants were able to identify the difference between a leader and follower, as well as, the significant role that each member needed in order to become a productive member of society.

High School Financial Planning

The High School Financial Planning Program was developed by the National Endowment for Financial Education and sponsored in partnership with the U.S. Department of Agriculture Cooperative State Research, Education, and Extension Service and Credit Unions. The program is designed to alert and educate high school students in the fundamental concepts of financial planning. The financial planning sessions included workshops and hands-on practices in selling, budgeting, saving and check writing.

Day Camp

The purpose of day camps is to provide educational and recreational activities that focus on literacy, math, computer science, dance, martial arts, team sports and fun. The camps provided youth with an opportunity to meet community leaders and introduce them to different cultural experiences. The camp also allowed the participants to challenge themselves mentally and physically.

After School Program

The Brighter Futures program sponsored by Save the Children, gave youth the opportunity to achieve academic success and gain practical experience with hands-on skills, out of school time, cultural diversity, literacy programs, nutrition, physical fitness, family strengths, values and etiquette programs. This past year, the Brighter Futures program received \$77, 586 in grant funds to support after school programs.

Internal/External Linkages

There have been several partnerships developed to assist in providing programs to youth in Orangeburg, Marlboro, Hampton, Pickens and Williamsburg counties. Collaborations were established with Save the Children, Woodland High School, North High School, Clarendon County Department of Social Services, the National Endowment for Financial Education and the U.S. Department of Agriculture Cooperative State Research, Education, and Extension Service. These entities made it possible to have successful youth programs in the area of youth development, leadership development, after school programs, financial management and day camps. Partnerships and Memorandums of Understanding have been established with 1890 Research and Extension.

Orangeburg Cluster

Calhoun County Department of Social Services, Orangeburg Consolidated Three, Delvin Wescott (Riverbank School of Ethnic Dance) and Bowman Elementary School.

Marlboro Cluster

Marlboro County Recreation Department, Marlboro Park Hospital and Hope of the Pee Dee

Hampton Cluster

Allendale Recreation Department and Hampton Gardens Apartment Managerial Systems

Pickens Cluster

Pickens County Department of Social Services, Easley Housing Authority, Martin Luther King Masonic Lodge #472, Clemson Extension Service, Anderson YMCA, Anderson Recreation Department, Greenwood County Recreation Department, Partners for a Healthy Community

Williamsburg Cluster

Williamsburg Fire Department, Williamsburg County Sheriffs Department, St. Ann Catholic Outreach Center, C.E. Murray High School, Kingstree Senior High School and Morrisville Just Say No Club

Impact

In an effort to reduce the negative trends of our youth, the youth proponent of the 1890 Extension Program conducted 630 workshops, demonstrations, trainings and meetings in the areas of leadership skills, youth development, financial management, day camps and after school programs. As a result of the meetings and training sessions, there were 21 collaborations established with state and local agencies. The 1890 Extension program has had contact with 1,994 youth who participated in 20 different programs.

As a result of these programs, the South Carolina State University 1890 Extension Program and its collaborators made it possible for 2,500 youth to visit the campus in an effort to promote higher education and career development. Youth who have participated in the programs have shown positive change in their attitude, social etiquette, self-esteem and academic achievement.

Success Story 1

During a leadership skills class taught to members of the Boys and Girls Club in Hampton County, a female participant with low self-esteem was afraid to socialize or even eat in front of her peers. The young girl did not have any confidence in herself, but wanted to fit in with the others. After learning to communicate with others and gaining positive self-esteem, the participant was teaching the others new games and was not trying to change her character to fit in.

Another participant entered the Philip Martin Taylor School of Discipline in Walterboro suffering from obesity and low self-esteem. The boy would eat as much as he could as often as he could, to prevent having contact with his peers. By the end of the program, this participant gained self-esteem and lost 20 pounds via group activities.

Success Story 2

The Paxville Community Development Center prides itself in offering quality service to the people in the community. A particular area of interest is high academic achievement among the children who attend the center. Through the after school tutoring program, great strides are being

made. At the end of the first nine-weeks of the academic year, seven students attained honor roll status at various schools in Clarendon County. Team work with the children brought out an increased level of confidence in them as their grades improved. At the end of the second nine-week period, 15 students made the school honor roll. This number includes the seven who achieved better grades during the first nine-week period and an additional eight students who made the honor roll. So, not only are students attaining better grades, they are also maintaining good grades. Students with a “C” average (C’s) have improved their grades to an “A” or “B” grade level. There are a few students who were already scoring high in their school work prior to coming to the center, but to see the fruits of our labor among the “average” students was amazing. Students who were failing in some subjects were able to pull their grades up to passing. At the end of the Fall 2003 semester, students continued to be motivated and work hard to pull their grades up even higher. These students were rewarded with a trip to Ryan’s and pizza party. Words of encouragement and homework assistance are really paying off!

Success Story 3

The Community Progressive Creative Youth (CPCY) partners with 1890 Extension to conduct after school programs for K-12. Using the Lights On After School initiative in collaboration with the South Carolina After School Alliance, students are taught math, science, reading and phonics. The Lights On After School initiative hosted after school and camp registrations, provided school supplies to the youth, and served refreshments to attendees. Since participating in the program, children improved their behavior and their school work. One hyperactive boy has shown great improvement after participating in the after school program. He is learning how to control his actions and is doing much better in school.

Key Theme: Focus Area 551: 4-H, Youth, and Families

Statement of the Issue

The overall mission of this goal was to provide family development, resource management, and educational programs to improve the well-being of the family structure. Enhancing parenting skills, managing resources, and care provided for children and dependent elderly family members was included. In addition, the focus was to build partnerships within the community with public and private organizations. In order to accomplish the mission of the Extension Program at South Carolina State University, staff directed their attention to two program focus areas: 4-H, Youth, and Families and Community, Leadership and Economic Development.

Performance Goal(s)

EXT1: There is a decline in the family structure in the state of South Carolina. According to the Department of Health and Environmental Control, 29 percent of families in the state are headed by single parents. The Building Family Strengths Curriculum was initiated by the Extension Program to obtain information that would directly address the issues of youth and family in the state of South Carolina. Based upon an ethnographic research study, the uniqueness and diversity of families was recognized. From the research 10 common themes to support the ideas of strong families emerged.

The curriculum focuses on the positive qualities of families and encourages families to recognize their strengths and build on them.

Also, the 1890 Child Development component is designed to provide opportunities for children, youth and families to participate in organized educational experiences to assist in the upgrade of their quality of life. Because rural families live on limited incomes it is difficult for many families to provide children with the educational material and skill enrichment necessary for healthy child development. The ability to understand child development will give parents the necessary tools to be successful.

To enhance parenting skills, managing resources, caring for children and dependent elderly family members through assessment skills, the Active Parenting Now curriculum has been implemented. It is a video-based interactive tool that teaches a comprehensive model of parenting to parents of children ages 5-12. The program is composed of six sessions. Learning points include: communicating effectively with children; preventing the use of alcohol, tobacco, and drugs; disciplining while teaching responsibility; encouraging the development of self-esteem and character; redirecting misbehavior; and sidestepping power struggles.

EXT 2: 1890 Research and Extension plays a major role in developing the lives of youth. Information has been developed to provide a holistic approach to improving the quality of life promoting self-sufficiency. Tackling the Tough Skills curriculum incorporates interactive teaching techniques that encourage the learner to both explore and express their thoughts and feelings. The learning topics include conflict resolution, communication, resume writing, and career development.

The Extension staff also possesses the skills and knowledge to work with the South Carolina State University debate team and to help the students to develop their presentation skills. This is a great opportunity for Extension to work with the academic side of the University, and provide an excellent forum to explain the mission of 1890 Research and Extension, as well as building and fostering collaborations within the University. In addition to research conducted by 1890, students were afforded an opportunity to further develop their cognitive thinking skills, work ethics, and careers.

Empowering youth to be leaders is what is important in society today. Youth enrolled in after-school programs or school enrichment classes were taught the basics of what it means to be a leader. The classes were designed to teach youth the basic leadership skills which are: goal setting, conflict resolution, building self-esteem, understanding the decision-making process and understanding diversity.

The National Endowment for Financial Education sponsored a financial management program in partnership with the U.S. Department of Agriculture Cooperative State Research, Education, and Extension Service and America's Credit Unions. The program educates 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.

Output Indicators

EXT: 1

In the Marlboro Cluster, seven workshops were conducted in three counties, as a part of the Building Family Strengths curriculum for 169 consumers. All consumers were female. One hundred and thirty-one were African-American, 23 Native-American and 15 Caucasian. One hundred and twenty-five consumers surveyed are utilizing information from the workshops. The collaborators were Americorp, Berea Association, Housing Authority, Marlboro County School District, and the Department of Social Services.

In Orangeburg County, the Building Family Strengths curriculum was used to stimulate seniors and encourage them to remember and share their life history and family stories. Partnering with the Orangeburg, Calhoun, Allendale and Bamberg (OCAB) Head Start Program and the Orangeburg County Council on Aging, methods to aid in the preservations of heirlooms and keepsakes were taught. Two workshops were conducted utilizing the Building Family Strengths curriculum. A total of 56 clients participated in workshops and educational programs. Ninety-six percent surveyed were female with four percent male. All clients were African-American.

Also in Orangeburg County, the Building Family Strengths curriculum was used to initiate discussions on self-esteem and communication. Each age group participated in educational activities and was given handouts to actively engage participants in learning opportunities. The programs were held at Hunter Kinard Tyler (HKT) and the Bowman Day Camp. At Hunter-Kinard-Tyler School, 92 clients participated in workshops and educational programs. Fifty-three percent surveyed were female and 47 percent males. All clients were African-American. At the Bowman Day Camp, 28 clients participated in five workshops and educational programs. Seventy-nine percent surveyed were female and 21 percent males. All clients were African-American.

Further, in Orangeburg County, seven clients participated in four workshops on Parenting. All clients were female and consisted of African-American and one Caucasian. Evaluation forms indicated that seven participants planned to use information from the program. One participant indicated that the information on learning styles would help her to assist her son. Three participants wrote that they plan to use different ways to address behavior issues with their children.

Three additional workshops were held using the Active Parenting Now curriculum. Twenty-eight clients participated in workshops and educational programs, 86 percent surveyed were females and 14 percent males, and 26 were African-American and two Caucasian.

In terms of financial management, 32 workshops were held at Woodland High School utilizing the High School Financial Planning program. Forty clients participated in the workshops

and educational programs. Fifty-six percent surveyed were female with 44 percent males, 27 were African-American and 13 Caucasian.

Output Indicators

In collaboration with the Calhoun County DSS Parenting component, seven clients participated in two workshops utilizing Tackling Tough Skills. All participants were female and African-American. The Parent Education Support and Skills for Taking Control of Your Future programs successfully facilitated the classes. The program provides a powerful new way for parents to look at the challenges of parenthood.

Partnering with the Barnwell Department of Social Services, 1890 Extension used the Tackling Tough Skills program to educate parents about employment interviewing skills. There were three sessions provided and 108 handouts were distributed to the 27 clients that attended. They learned networking and research skills, interview skills, resume writing, how to dress appropriately for an interview, the importance of following-up on an application, taking pride in their work, and having a positive attitude.

Four workshops were conducted on leadership development in Orangeburg County. Ninety five clients from St. Paul Baptist Church and Hunter-Kinard-Tyler after school program participated in the workshops and educational programs Seventy-two percent surveyed were females with 28 percent males. All the clients were African-American. The students discussed how self-esteem could affect leadership style.

In collaboration with the South Carolina State University Honors Program, the National Association of African American Honors Program, the National Association of African American Honors Program Executive Committee, and the South Carolina State University Title III Programs four clients participated in five meetings to prepare for the debate. Fifty percent surveyed were male with 50 percent female. All clients were African-American.

Outcome Indicators

EXT: 1

Through collaborations with the Bowman Literacy Program, the South Hope Center, and the Barnwell Department of Social Services, the 28 participants who were a part of the Active Parenting Now curriculum training were able to recognize, name and discuss the three types of parenting styles.

As a part of the Building Family Strengths curriculum and the Bowman Day Camp, 12 clients adopted recommended practices.

Outcome Indicators

As a result of learning the debating process, the members, improved their formal speaking

techniques and structure, developed leadership skills, were provided an opportunity to learn more about American government and history, developed decision making techniques and skills, developed the art of listening and comprehension skills, practiced good sportsmanship, improved self confidence, and a total of 35 volunteer hours were clocked, and students research skills were enhanced.

The leadership students role played, discussed, and made decisions on a variety of vignettes and situational statements. Students discussed how your self-esteem can affect your leadership style. Thus, youth enrolled in ongoing after school programs or school enrichment classes were taught the basics of leadership. Exposure to different situations, people and school involvement has an impact on personal leadership styles. The organizations that partnered were St. Paul Baptist Church – TEAM After School Program, and the Hunter-Kinard-Tyler After School Program.

With the financial management classes, the most direct way to know if the prevention program changed program participants' knowledge, attitudes, behavior or some other outcome was to test program participants before the program and again after the program. Pre testing students before the program indicated both how much change occurred over the course of the program and how comparable the students were before the program. Of the six classes participating, all classes showed an average increase of 63 percent with the lowest increase being 35 percent and the highest being 84 percent.

Key Program Components

Active Parenting Now

Active Parenting Now is a video-based interactive tool that teaches a comprehensive model of parenting skills to parents of children ages 5-12. A teaching guide accompanies the program with follow-up assignment(s) to reinforce the techniques demonstrated. The program is composed of six sessions. Learning points include: communicating effectively with children; preventing the use of alcohol, tobacco, and drugs; disciplining while teaching responsibility; encouraging the development of self-esteem and character; redirecting misbehavior; and sidestepping power struggles.

Building Family Strengths

The Building Family Strengths Curriculum was developed based upon an ethnographic research study conducted by Clemson University Cooperative Extension Specialists. While recognizing the uniqueness and diversity of families, from the research emerged 10 common themes that support the ideas that strong families believe in open and honest communication, experience contentment with their lifestyle, have a sense of humor, have a sense of optimism about life, exhibit resiliency during change, have high self-esteem, have a sense of spirituality, encourage unity, family togetherness, and share common values.

Tackling the Tough Skills

The Tackling the Tough Skills program is based on the principle that learning does not have to be painful in order to be effective. The curriculum incorporates interactive teaching techniques that

encourage the learner to both explore and express his/her own thoughts and feelings. Information has been designed to provide a holistic approach to improving ones' quality of life and encourage self-sufficiency. Learning topics include conflict resolution, communication, resume writing, and career development.

NEFE High School Financial Planning Program

The National Endowment for Financial Education (NEFE) sponsored a financial management program in partnership with the U.S. Department of Agriculture-Cooperative State Research, Education and Extension Service Area and America's Credit Unions. The program was 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.

Unlock Your Leadership Potential

This 4-H Leadership curriculum is designed to help 12-18 year old youth learn and practice leadership skills. The 4-H Leadership program provides an opportunity for young people to practice a variety of life skills while learning subject matter including communication, getting along with others, making decisions, understanding different teaching methods and learning styles, managing resources and people, and working with groups.

Programs

1. Skills for Taking Control of Your Future
2. Basic Etiquette
3. Where are Those Important Papers?
4. The Bag of Life Program
5. The Joy of Laughter
6. Orangeburg Child Development
7. Go for the Goal
8. Big Sister/Brother Program After School Program
9. Breast Cancer Awareness
10. Bowman Day Camp

Impact

The social, demographic and economic changes have greatly affected the lives of many families. The economic status, health, housing, transportation, school readiness and physical well being are troublesome conditions for many of our youth and families. The Building Family Strengths program has led families to recognize their problems, communicate their concerns, and cooperate in taking care of each other.

An evaluation of the Parenting Education Classes held at Rivelon Elementary School indicated that the seven participants plan to use information from the program. One participant

indicated that the information on learning styles would help her to assist her son. Three participants wrote that the one thing they planned to use was the different ways to address behavior issues with their children.

The Tackling Tough Skills training was used at the Bowman Adult Family Literacy Center to educate parents about aspects of parenting including: how to positively interact with their children, better communication skills, building self-esteem, time management and job skills. The weekly workshops were geared towards encouraging the women in this community to create a positive family environment. As a result of the workshops, three women used the skills taught to find jobs and one woman successfully received her GED.

The clients who participated in the financial management workshop increased their knowledge on how to budget their expenses, as well as savings and used their money wisely.

Success Story 1

The South Carolina State University Honors Debate Team Placed Third at the National Association of African American Honors Program (NAAAHP) Conference 2003 in Nashville, TN.

The purpose of the NAAAHP is to provide an opportunity for minority honors students from Historically Black Colleges and Universities to promote the continued empowerment of its students through enhanced cognitive and affective experiences.

The goals further emphasized the need for empathetic responsiveness on the part of the students, who through inspiration from the organization will be encouraged to serve as catalysts for instigating a better way of life in their communities, the nation, and the world.

Success Story 2

More families attending the Building Family Strengths workshops utilized resources within and outside of the family unit that enabled them to become empowered and stronger as a family. Fifty (50%) percent of the families used resources available in their community such as churches, food banks, and neighborhood assistance.

Success Story 3

Bowman is a very small rural community with very limited resources. As a part of the CYFAR grant, South Carolina State University/ 1890 worked with the community to address some of its concerns. One of the major concerns of the community was recreational activities for youth. To address this need, the Bowman 1890 Extension staff worked to develop a summer camp program. The camp targeted children ages 7 to 13 and children with special needs were also encouraged to sign-up. Through the CYFAR program, the 1890 Extension staff held a three week camp in Bowman, South Carolina. The camp was held at Bowman Elementary School, Monday through Friday from 7 am to 1 pm. The camp was supervised by the county agent and program assistant. There were collaborations with several local organizations and assistance from state office staff of

1890 Extension. Some of the collaborators were Ms. Delvina Westcott, Riverbank School of Ethnic Dance, Kuk Sool Won of Orangeburg, the Railroad Safety Program and the Orangeburg County Sheriff's Department.

There were 30 children that enrolled in the camp, 11 males and 19 females. Of the 30 children, two were special needs children. The camp participants received a nutritional breakfast, lunch and snack. The children participated in activities such as, sewing, social etiquette, arts & craft, dance class, food science, financial management, physical fitness, farming and family values. By design, the camp allows children to have hands-on experience and participate in activities that they would normally not have the opportunity to take part in, due to the rural economic condition of the community. It was hoped that through the camp children would gain team building skills, self-confidence, high self-esteem, cultural awareness, friendships and memories of a good camp experience.

At the conclusion of the camp, a cookout celebration was held. Parents, administrators from the 1890 Extension program, instructors and community members that assisted in making camp a success were invited to participate in the celebration. The children performed an ethnic dance that they learned from the dance instructor, Ms. Delvina Westcott from the Riverbank School of Ethnic Dance. The dance consisted of boys playing the drums, tumbling and rolling, as well as the children dressing up in ethnic attire to display cultural awareness as they performed their dance. The children also displayed the art that they made during the camp for show and tell. The children participated in water activities and games that were purchased and set up at the camp site for them to enjoy their last day. Each child that participated in the camp received a certificate for their participation. For each activity that was conducted at the camp, we were able to accommodate the children with special needs.

After the camp, parents and children were given the opportunity to evaluate the camp. Some of the children stated that they wished they could stay and the camp did not have to end. One parent stated that the doctor had seen some improvement in her child's social skills, and another parent said that she really appreciated what was done for her child. The outcome for the participants was worth the effort that was put forth to organize and implement camp activities.

Key Theme: Focus Area 552: Community, Leadership and Economic Development

Funding: USDA / RBS Cooperative Agreement No. RBS 02 - 25 (\$100,000)

Issue

The South Carolina Office of Research in 2000 reported that African-Americans in South Carolina had the highest percentage of unemployment. Unemployment was 6.4 percent for African-Americans 16 years and older, compared with 2.5 percent of the White population and 4.5 percent of the Hispanic population and 2.5 percent of the other race.

Historically, limited-resource clients and underserved communities have relied on government assistance, but this is only a temporary solution. In South Carolina, rural communities are confronted with a lack of employment opportunities. They are not afforded access to the training and resources required to develop jobs, locate funding sources or organize community service programs like large urban areas.

Because of these obstacles, limited-resource clients and underserved communities have lost their resolve to become self-sustainable. In rural business, the best way to change community attitudes is to promote economic security, stimulate job creation and assist entrepreneurs in developing innovative ways to enhance their economic viability.

The community economic development and rural entrepreneurial programs offered by the 1890 Research and Extension Program are designed to improve small business income, enhance the business management, marketing and bookkeeping skills of small business owners and entrepreneurs, educate rural communities about alternative programs and assist with business expansion.

These initiatives are aligned with the South Carolina Department of Commerce, which works on a larger scale to prepare communities for economic and product development (infrastructure, industry construction, and speculative buildings). In fact the Department of Commerce is working to improve the economy in 23 counties identified by the South Carolina Department of Revenue as distressed, underdeveloped, least developed and moderately developed. The 1890 Research and Extension program is working with five of the counties - Jasper, Marlboro, Williamsburg, Hampton and Orangeburg, which have an annual revenue ranging from \$3,500 to \$8,000.

Partnerships and collaborations with local and state agencies, community leaders, and schools are essential in addressing the multi-cultural challenges and in strengthening community resources. The 1890 Extension Program partnered with community groups, community development corporations and small business leaders to deliver business oriented programs to local residents.

The 1890 Research and Extension Program is dedicated to increasing economic development in rural areas. Through entrepreneurial, economic and technological education and support, the goal is to help rural communities raise their standard of living using the principles of continuous improvement and collective action.

By giving people a thorough and complete understanding of entrepreneurship, rural communities have the skills to create solutions for the economic problems that plague their communities. Furthermore, they will be able to establish support mechanisms for change, whether the support mechanisms are new businesses that create jobs, or social programs that provide a service to those in need.

Performance Goal(s)

EXT 1: To enhance the economic viability of rural and urban communities.

A main priority in rural communities is the need for community leadership that can stimulate economic development. The Rural Business and Economic Development program is working to improve the lives of rural South Carolinians by assisting communities to acquire resources toward job creation and the development of new or expanded small businesses. The series of related activities build business and education experiences, along with effective techniques for use in everyday problem solving.

EXT 2:

Often communities are in need of assistance with new business development, social or health programs, community organizing, board training, strategic planning, and operating a business. The Rural and Urban Community Economic Development program provides rural communities technical assistance to foster the development of community organizations and individuals who are interested in building the capacity of their communities. Our clients represent people in the field of education, health care, social services, government, utilities, economic development practitioners and citizen groups. Within six months to a year, new community organizations were established in Sumter (moderately developed), Calhoun, Marlboro, Williamsburg, Lee, and Orangeburg counties. Rural development assisted organizations with incorporation, the development of by-laws, 501(c)(3) status, board training, and operation procedures. All of the communities have been approved for 501(c)(3) status. As a result of the technical assistance obtained from economic developers, the community organizations have improved the services and resources available to residents. Community groups have gone on to establish micro loan programs for small businesses and a day care center.

Output Indicators

Through a series of workshops and training sessions, 140 clients were served by the Rural Business and Economic Development Program during the fiscal year 2002-2003 (October 1, 2002 – September 30, 2003). The clients received skills in the areas of marketing, human resources, operations, accounting, bookkeeping, finances, international trade, and other specialized areas of business management. Economic developers made 145 business consultations in Marlboro, Marion, Dillon, Sumter, Lee, Calhoun, Orangeburg, Hampton and Dorchester counties. As a result of the contacts established with the 140 clients, business plans and loan applications were prepared for 13 clients. Three (3) loan applications totaling \$270,000 were funded.

Outcome Indicators

While state and local programs are dealing with budget cuts and job availability is on the decline, community organizations have increased their interest in ways to expand and enhance rural development. There was a 6% percent increase in the number of collaborations and partnerships

established to assist with educating and training community leaders.

Key Program Components

Business Consulting

The Business Consulting Services provides businesses with advice related to particular areas of their business. Business owners and executives receive assistance in marketing, human resources, operations, accounting, bookkeeping, finances, international trade, and other areas. Consultations can take place over the phone, at an 1890 Extension Office, or onsite.

Business Workshops / Seminars

The Business Workshops offer business owners and executives advice on business management. Workshops are taught in a practical way by 1890 Extension staff and SCSU School of Business professors. Workshops are designed to encourage questions, feedback, and idea exchange. Because of this, many prefer learning new business concepts in the workshop format versus any other option. Workshops are offered in collaboration with the SCSU School of Business.

Website Development (Architecture & Graphic Design) for Small Business

A web page is the front door to promoting a business on the Internet. This course allows the business owner to create a web site plan. The instructor discusses the ideas, tools, experience and know-how so that participants get the most from their website investment. Participants learn to create virtual communities with customers, suppliers, employees, and friends.

Entrepreneurship Course for Youth

The Entrepreneurship Course teaches high school students about the principles of entrepreneurship. The goal is to cultivate world – class business leaders who have character and the ability to make a difference within the world around them. After students learn the principles, they are given an opportunity to put the principles into practice through the establishment of a small business. Several students have expressed an interest in business ownership.

Beginner Investing

This four-week program takes individuals step-by-step through the investing process. Weekly participants are introduced to new aspects of investing to include how to read the Wall Street Journal, how to read the stock market indexes, investment strategies and the basics of investing. Middle and high school students venture into the world of business leaders, where they establish their own business and manage their own investment portfolio.

Internal/External Linkages

Memorandums of Understanding have been established between the 1890 Research and Extension, Center for Entrepreneurship and Rural Development and the Sumter Empowerment Zone/City of Sumter, the Marlboro County Community Development Corporation, the Town of Estill, Edisto High School and William J. Clark Middle School. Organizations are interested in promoting community economic development through small business consultations and

entrepreneurship education. Services are available to community residents.

A partnership with the SCSU School of Business is fostering an opportunity for business professors to share their expertise with community leaders and small business owners. In addition, community leaders obtain research-based information that can be implemented locally to advance small business development. This also allows the University to fulfill its outreach mission of community education.

Impact

Direct assistance or training was delivered to 140 people in business development. In the workshops and seminars conducted, potential entrepreneurs learned how to start a business, how to evaluate business ideas, the basics of financial management, how to write a business plan and ways to locate financial resources. As a result of the trainings, workshops and technical assistance, two clients started a new business and two loans were funded for a total of \$270,000.

Eighty-five percent of clients agreed that the services met their expectations and 86 percent agreed that the services provided the information and assistance they needed for small business start-up or operation. Participants expressed high levels of satisfaction with workshops, presenters, and materials and found the content useful. Clients gained educational knowledge from hands-on experience and increased knowledge about regulatory and licensing information, marketing, finance, bookkeeping and opportunities to work with experts, find out about local resources, receive referrals, and network with others. Fifty-six percent of workshop participants currently operate a business and 79 percent reported their business as their primary or secondary source of income.

Success Stories

Category: Business Development / Expansion

Outcome: \$10,000 Marketing Grant

Description: Ernest Murray, owner of Blacktalion Station Restaurant located in Charleston, SC, received assistance from the 1890 Program to develop a business plan that would expand his restaurant. Murray, a business owner for 30 years, obtained a \$10,000 grant from the City of Charleston to finance the expansion.

Category: Business Development / Expansion

Outcome: \$235,000 Loan for business acquisition

Description: After working for Ruth's Wardrobe II for more than 20 years, Hettie Dobson decided to buy the business and make it her own. Dobson collaborated with the Rural and Urban Community Economic Development Program to obtain the \$235,000 needed to purchase Ruth's Wardrobe II and an inventory warehouse.

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 is 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 include 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 were 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.

A study conducted by Dukes (1999) on the Expectations of Public Service at Land Grant Institutions for the 21st Century by traditional and non-traditional audiences in South Carolina found that important issues facing communities in South Carolina are: 1) growth and population, 2) environment, 3) community and economic development, 4) agriculture productivity, 5) family issues, and 6) food, health and nutrition

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 multistate, 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

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.

- 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

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.

Formal Master Tree Farmer programs were not conducted in 2003, but will resume in 2004. Master Tree Farmer graduates attended a variety of related trainings, tours and landowner association meetings.

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 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.

The following impacts were reported for 2003.

1. Twelve programs were conducted.
2. Number of people completing programs was 1,329.
3. Number of people reporting increased knowledge was 165.
4. The number of impacted forest acres was 4,580.

Fire Ant Research & Extension Program

Participants/Collaborators: Principal Investigator -- Dr. Paul M. Horton, Clemson University, Clemson, South Carolina. Tim Davis, Clemson Extension, Areawide 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. The next release is scheduled for June 2004 in Horry County. 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.

General Extension

More than 35 training programs and production meetings were held throughout the state to teach IFA management techniques to more than 1260 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.

E. MULTISTATE EXTENSION ACTIVITIES

Extension faculty and staff are currently involved in several 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.

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. However, the agreement ended in FY 2002 with no additional monies provided in FY 2003.

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 inservice 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 FY 2003.

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).

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.

**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)**

Institution Clemson University
State South Carolina

Check one: Multistate Extension Activities
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)

Actual Expenditures

<u>Title of Planned Program/Activity</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY2004</u>
<u>Virtual Small Fruit Center</u>	<u>\$12,948</u>	<u>\$35,738</u>	<u>\$28,590</u>	<u>\$35,000</u>	<u>\$38,298</u>
<u>Regional Forestry Position</u>	<u>6,150</u>	<u>6,122</u>	<u>5,747</u>	<u>4,978</u>	<u>4,966</u>
<u>Regional Water Qual Pos. (EPA)</u>	<u>10,463</u>	<u>4,700</u>	<u>5,232</u>	<u>-----</u>	<u>-----</u>
<u>Orchard Floor Management</u>	<u>14,500</u>	<u>15,000</u>	<u>7,500</u>	<u>15,000</u>	<u>15,455</u>
<u>Pest Management Handbook</u>	<u>0</u>	<u>16,942</u>	<u>9,511</u>	<u>0</u>	<u>10,500</u>
<u>Fire Ant Program</u>	<u>30,000</u>	<u>15,000</u>	<u>15,067</u>	<u>135,000</u>	
<u>*Environ Housing Issues, South</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	<u>\$74,061</u>	<u>\$93,502</u>	<u>\$71,647</u>	<u>\$189,978</u>	<u>\$69,219</u>

Form CSREES-REPT (2/00) _____ Director _____ 04/01/04
Date

*Environmental Housing Issues Affecting the South program which was to begin in 2001 was not developed due to the lack of subject matter specialist support for this area

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 Environmental Housing Issues Affecting the South program which was proposed for 2001, was not developed due to the lack of subject matter specialist support for this area.

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. For example, the former Dean and Director of Research had a 25% Extension appointment, while the former Dean and Director of Extension had a 25% research appointment. Similarly, the four associate deans for the College of Agriculture, Forestry, and Life Sciences have joint appointments in both research and Extension. These associate deans coordinate research and Extension programs. These joint appointments provide the foundation for a strong working relationship and better understanding of the process involved in research-Extension integration. To accomplish the five GPRA goals in FY 2003, 11 initiative teams were utilized. Each team had faculty and staff drawn both from research and Extension. In FY 2003 these initiative teams were provided with \$83,831 of appropriated monies for program development activities, even though the organization was faced with another year of budgetary constraints.

A marketing program is being initiated with the support of both research and Extension to provide publicity for our joint programs and activities. 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.

The Experiment Station Invested \$385,086 in integrated Research and Extension activities.

The areas appearing on Form CSREES-REPT (2/00) below reflect the Hatch funds committed to integrated Research and Extension activities.

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)

Institution: Experiment Station , Clemson University
 State: South Carolina,

Check one: Multistate Extension Activities
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Funds)

Title of Planned Program/Activity	Actual Expenditures
	FY 2002
Turf Grass	\$120,000
Water Quality	32,000
Farm Management	35,325
Marketing	110,156
Information Technology	49, 776
Agro-Ecology Program	<u>51,170</u>
Total	\$398,427

Director _____ Date _____ Form CSREES-REPT (2/00)

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.

Water Quality: The Experiment Station provides lab facilities for analysis by the Extension waste management initiative team, and selected pieces of laboratory and field equipment were made available to support extension efforts.

Farm Management: The Experiment Station provides farm services which directly support extension demonstration plots and field days. These activities are ongoing and require a significant commitment of equipment and farm staff to insure quality demonstration plots and field days.

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 provides 50% of the support for the innovative Agro-ecology Program

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Institution Clemson University
State South Carolina

Check one: **Multistate Extension Activities**
 Integrated Activities (Hatch Act Funds)
 Integrated Activities (Smith-Lever Act Funds)

Actual Expenditures

Title of Planned Program/Activity	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004
<u>Enhancement of Applied Research and Extension Activities</u>	<u>\$433,517</u>	<u>\$401,595</u>	<u>\$306,720</u>	<u>\$390,560</u>	<u>\$450,261</u>
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Total	<u>\$433,517</u>	<u>\$401,595</u>	<u>\$306,720</u>	<u>\$390,560</u>	<u>\$450,261</u>

Form CSREES-REPT (2/00) _____ 04/01/04
Director **Date**