



SC State
UNIVERSITY

Public Service Activities (P210)

FY 2020 - 2021
Ways and Means Budget Hearing
Economic Development and Natural Resources Subcommittee
January 14, 2020





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Key Officials/Executive Management Team

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Agency Overview

SC State University Public Service Activities (PSA) is a part of a national network of over 100 land-grant universities located in all 50 States plus the territories. The State of SC is fortunate to have two such universities, SC State University (the 1890 institution) and Clemson University (the 1862 institution). Both institutions receive congressionally mandated federal funds through two different laws (Morrill Act of 1862 and Second Morrill Act of 1890).

The two universities through a partnership with USDA National Institute of Food and Agriculture (NIFA) have state and federal obligations. Research is designed to provide current and innovative problem-solving research, while Extension develops, implements and evaluates outreach programs. The two components are designed to enhance the quality of life and economic viability of the residents of South Carolina. The overall mission of SC State PSA is to promote an organized research and extension system that incorporates stakeholders' input into the design, implementation and evaluation of programs, activities and services, which address quality of life issues by providing research-based solutions for South Carolinians. The agency's major program areas are agriculture/natural resources, family life, health and nutrition, youth development, community economic development, education and technology.



As Commissioner of Agriculture, I am pleased with the work that the 1890 Research & Extension program at SC State has accomplished. I look forward to the results of its continued push towards innovation, life-changing service, excellence in scholarship and agricultural research.

- Hugh E. Weathers
Commissioner, SC Department
of Agriculture

The 1890 Research & Extension at SC State continues to provide our state's agribusiness sector and rural areas valuable support. Leadership at 1890 has worked closely with the Palmetto AgriBusiness Council over the past year, and PABC remains grateful for the positive relationship that exists. No doubt, this relationship will serve to make our state even stronger as we proceed into the future.

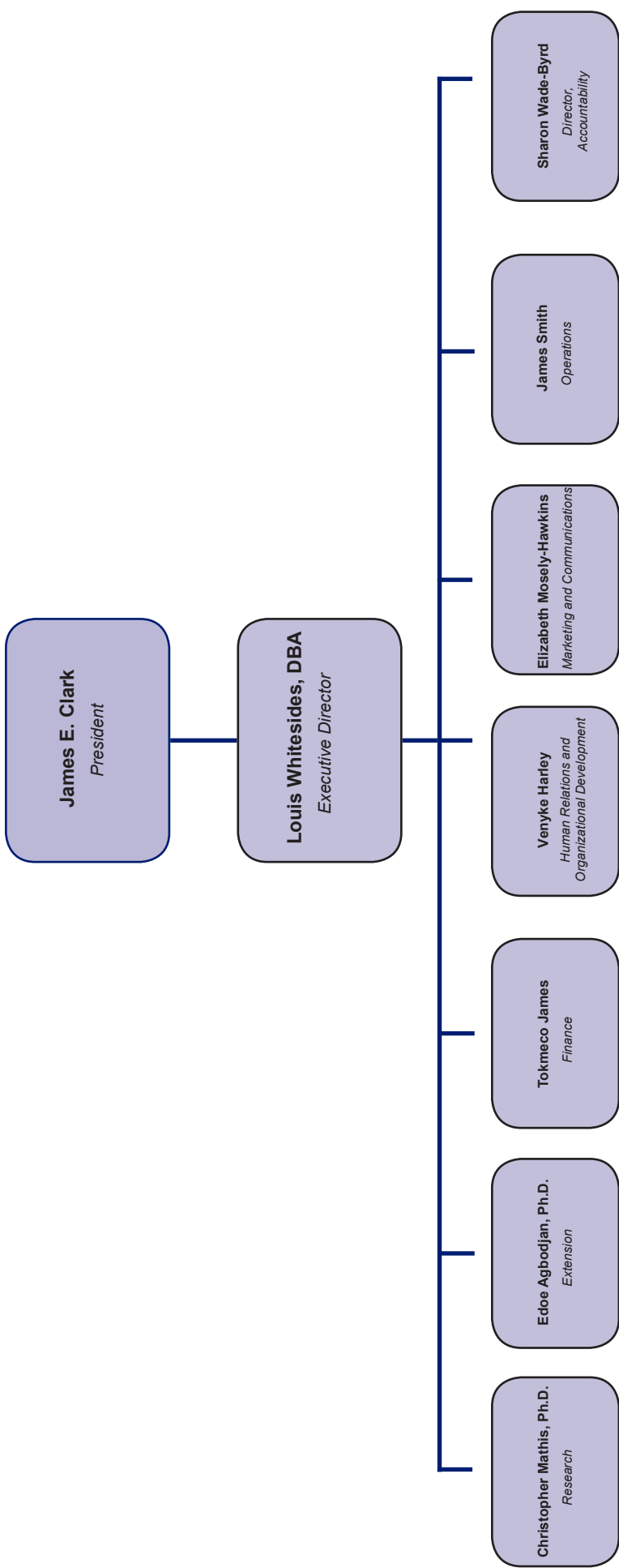
- Ronnie Summers
CEO, Palmetto Agribusiness
Council

The services that 1890 Research & Extension provides to the farmers of South Carolina is invaluable. They are uniquely positioned to help their target audience. 1890 Research & Extension has been a blessing to many communities across the Palmetto State.

- Antron Williams
President, Orangeburg County
Young Farmers



Organizational Chart



FTE
Total FTEs: 49
Vacancies: 3





Performance Update - Executive Summary

SC State Research and Extension raised the educational consciousness and awareness of national issues that impacted the residents of South Carolina. The SC State Research Program is the catalyst that has kept the University at the forefront of agricultural and rural research problems and issues confronting South Carolina. They worked to combat obesity among youth, examine the nutritional value of food, enhance bioremediation technology, improve food safety and security, develop optimization models that aided in decreasing logistics costs for biofuel, focused on leadership and economic development problems, worked with 4-H youth development and families, examined global food security and hunger issues and identified techniques to increase academic performance of students in public schools. SC State researchers and extension professionals trained undergraduate and graduate students to become the nation's generation of agribusiness professionals, biologists, engineers, environmental scientists and educators.

To highlight some of the research conducted at SC State, one researcher educated rural farmers and agricultural workers on the risks associated with loud noises on their farms. The study promoted the use of hearing protection, in order to make agricultural work more conducive to a healthy lifestyle. The research is expected to illustrate a strong correlation between high noise levels farmers may be exposed to, the hearing loss that occurs as a result of their actions and other related issues that are linked to hearing loss, specifically an increase in heart rate. Previous studies have implied that high noise levels increase stress, which can lead to an increase in heart rate and blood pressure. Uncontrolled high blood pressure can cause damage to arteries and lead to stroke or cardiovascular disease. Audiological sound level meter equipment and blood pressure monitor were equipped on the customized Speech and Hearing Mobile vehicle to measure blood pressure, noise levels of the machinery and assess the farmers' hearing acuity.

Regarding financially literate entrepreneurship, research looked at improving rural youth and families' economic and employment situations by providing and supporting quality education in entrepreneurship and financial literacy. Training sessions to approximately 50 high school students were provided. A pre-and post-test was disseminated to the students as well as their parents/guardians.

In a study analyzing the role of high pro-inflammatory diets and childhood obesity in the risk of adult carcinogenesis in South Carolinian children, research focused on the growing crisis of childhood obesity. Areas of South Carolina, such as the I-95 Corridor, have been under-developed for a long period of time and contributed to numerous problems to include obesity, poverty and increasing health problems due to lagging health care. The researchers looked whether high-fat pro-inflammatory diets contributed to increased levels of pro-inflammatory markers, raising the possibility that long-term chronic inflammation may contribute to and increase the risk of adult cancers.

SC State Extension implemented educational programs in targeted county clusters across the state. Lifelong learning opportunities were provided to help rural and urban participants improve their quality of living. There were 48 Memorandums of Agreements with external agencies established. The Extension Program served 8,158 individuals in outreach activities. Extension sponsored 1,326 different outreach activities. A total of 543 educated workshops were conducted and 4,873 attendees completed the workshops. A total of 272 producers indicated adoption of recommended practices. Thirty-eight producers reported a reduction in fertilizer use per acre. Extension agents educated 556 farmers on the importance of soil/nutrient management through soil testing. There were 668 acres in conservation tillage or other Best Management Practices (BMP). Forty-five producers reported an increase dollar return per acre or reduced cost per acre. Integrated Crop Management (ICM) affected 839 acres.

In attempting to develop a healthy, well-nourished population, 802 participants understood the benefits of physical activity. There were 1577 families/caregivers reached. Two hundred fifty-six workshops/trainings were conducted to establish and maintain healthy habits. Eight hundred two participants increased knowledge in safe food handling and nutrition. With the handwashing practices, 409 participants adopted the recommended practices. Six hundred fifty-five youth made healthy food choices after participation in the health programs. Nine summer academies/

camps were designed to increase educational attainment and enhance the occupational outlook of participants. A total of 811 youth gained knowledge/skills in SET (Science, Engineering and Technology) programs.

The SC State Small Farm Assistance and Outreach Program continues to inform producers about land loss and retention, land use, herd health management, forestry management and risk management. The Small Farm Program is implemented in 5 of the 1890 Extension Clusters and surrounding counties across the state. The Outreach efforts address landowners, limited resources, socially disadvantage farmers and ranchers needs in South Carolina throughout various educational activities and projects. One of the objectives of the Small Farm Program is to equip farmers with sound management practices which is a must for farming enterprises to be successful and sustainability.

The 4-H and Youth Development and Families Program addressed quality of life opportunities for the residents of South Carolina. The youth development program focused on areas such science, engineering and technology (SET), citizenship, nutrition and healthy lifestyles. The programs were designed to increase the knowledge of youth, encourage them to make healthy lifestyle choices and help prepare them to become future leaders of the world.

During 2018 - 2019, two of the three new 1890 facilities construction projects were erected. A groundbreaking ceremony for the third facilities project took place on August 28, 2019. The General Assembly's perception of the stability of SC State University regarding the 1890 Program receiving the 100% non-federal match requirement was critical and crucial to the success of the program.

With the fulfillment of promoting an organized research and extension system and achieving the goals/objectives, the 1890 Program would have an opportunity to flourish, become more visible and accessible to the constituents. With the collaborative efforts and partnerships, the 1890 Program can provide outreach services to more individuals across South Carolina.

During the next five-year cycle of the Plan of Work, the 1890 Research and Extension Program has established several priority goals to accomplish. The priority goals include reconstruction of Camp Harry E. Daniels; developing a demonstration farm at Camp Harry E. Daniels; conducting economic development activities in small towns and rural communities; securing land and constructing cluster centers in target counties across South Carolina; expanding the Mobile Technology Center outreach; increasing the involvement of faculty and the number of inter-disciplinary research projects; expanding internal and external collaborations and partnerships to build the land-grant capacity; expanding support to target groups including, but not limited to veterans; and launching campus/community health initiatives to address health disparities. The 1890 Program plans to increase their external funding to support programmatic and operational initiatives.





Financial Update



Fiscal Year	Budget	Actual Expenditures by Source of Funds					Carry Forward	Total
		General	Earmarked	Other	Federal			
FY 2018-19	\$8,713,353.00	\$ 979,585.00	\$0.00	\$0.00	\$4,130,313.00	\$5,109,897.00	\$0.00	
FY 2019-20	\$9,151,029.00	\$1,008,972.00	\$0.00	\$0.00	\$4,253,192.00	\$5,262,164.00	\$0.00	



Prioritized Summary 2020-21 Budget Request



FY 20-21 Prioritized Budget Request Summary												
South Carolina State University - Public Service Activities												
BUDGET REQUESTS					FUNDING					FTEs		
Priority	Request Title	Description	General - Recurring	General - NR	Capital	Other	Federal	Total	State	Other	Federal	Total
1	Targeted Research & Extension Program Development & Implementation	State FTEs and program implementation across the state	\$ 1,550,000						15.00			
2	Federal Positions for Research & Extension Program Implementation	Federal FTEs										10.00



Proviso Requests/Changes - N/A



SOUTH CAROLINA STATE UNIVERSITY

1890 RESEARCH PROGRAM

The 1890 Research Program is the catalyst that has kept SC State University at the forefront of agricultural and rural research problems and issues confronting South Carolina.

The 1890 Research Program was established in 1977, under the Food and Agriculture Act, to conduct research that addressed critical agricultural issues affecting minorities at that time. Today, the 1890 Research Program continues to contribute to the university's success in conducting relevant and wide-ranging agricultural research by channeling research funds to academic departments for basic and applied research.

1890 researchers, who are emerging leaders in their fields, are working to combat obesity among youth, enhancing bioremediation technology, improving food safety and security, developing optimization models that will aid in decreasing logistics costs for biofuel and identifying techniques to increase academic performance of students in public schools. These same researchers are also training SC State students to become the nation's next generation of biologists, engineers, environmental scientists, and educators.

Research Grant Opportunities

Research Development Grant
Research Innovation Grant

Program Areas

Sustainable Animal Production Systems
Sustainable Agriculture Products for (non-food)
Horticultural Crops
Natural Resource Management
Food Safety
Community, Leadership, and
Economic Development
4-H Youth Development and Families
Climate Change
Sustainable Energy
Global Food Security and Hunger
Family & Consumer Sciences



ADMINISTRATORS

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PRESIDENT, SC STATE UNIVERSITY
Dr. Louis D. Whitesides
EXECUTIVE DIRECTOR 1890 PROGRAMS
Dr. Christopher C. Mathis
ACTING 1890 RESEARCH ADMINISTRATOR

RESEARCH FACULTY

Dr. Mahtabuddin Ahmed Biological & Physical Sciences	Dr. Craig Littlejohn Engineering Technology
Dr. Nikhil Bandekar Business Administration	Dr. Yaoling Long Biological & Physical Sciences
Dr. Lilijana Bozinovska Biological & Physical Sciences	Dr. Rizana Mahroof Biological & Physical Sciences
Dr. Shanora Brown Biological & Physical Sciences	Dr. Muhammad Mustafa Agribusiness & Economics
Dr. Demarcus Bush Health Sciences/Speech Pathology	Dr. Jagruti Sahoo Mathematics & Computer Sciences
Dr. Rosetta Dingle Visual & Performing Arts	Dr. Haile Selassie Accounting, Agribusiness & Economics
Dr. Nasrollah Hamidi Biological & Physical Sciences	Dr. Renu Singh Business Administration
Dr. Antoinette Hollis Counselor Education	Dr. Waltena Simpson Biological & Physical Sciences
Dr. Jae Dong-Hong Industrial & Electrical Engineering	Dr. James B. Stukes Biological & Physical Sciences
Dr. David Jamison Business Administration	Dr. Zaijing Sun Civil & Mechanical/Nuclear Engineering
Dr. David Karemera Accounting, Agribusiness & Economics	Dr. Lakeisha Tucker Social Work
Dr. Ashley Knowell Biological & Physical Sciences	Dr. Leonis Wright Human Services/Counseling Education

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HIGHLIGHTED RESEARCH PROJECTS

The Assessment of Hearing Loss and High Blood Pressure among Farmers and Agricultural Workers in Rural Counties of South Carolina (Orangeburg, Clarendon, Richland, Charleston, Bamberg, and Berkeley)

Dr. Demarcus Bush, principal investigator
Department of Health Sciences/Speech Pathology

The goal of this project is to educate farmers and agriculture workers (minority and majority population) in South Carolina of the implications that excessive noise levels over a period of time could potentially bring about complications of ischemic heart disease and high blood pressure. This project also seeks to produce an inclusive environment for students who major in speech-language pathology and audiology or farm careers by enhancing their knowledge, as well as changing practices and attitudes of farmers and agriculture workers in the state of South Carolina.

Financially Literate Entrepreneurship for Rural Youth and Families: A Pilot Study at Two South Carolina Low Country High Schools

Dr. James Stukes, principal investigator
Department of Biological and Physical Sciences

This research will investigate the effects of ozone on aflatoxin in wheat, soybeans, and cottonseeds grown in South Carolina. There are two objectives for the proposed research project: to determine the prevalence of aflatoxins produced by the molds *Aspergillus flavus* and *Aspergillus parasiticus* found in the wheat, cottonseed, and soybean crops in S.C. and to develop an innovative approach to effectively inhibit the levels of aflatoxins in wheat, cottonseed, and soybean crops using various ozone treatments.

Achievement Motivation for Child Obesity Prevention

Dr. Liljana Bozinovska, principal investigator
Department of Biological and Physical Sciences

The main goal of this research study is to find a relationship between child achievement motivation and child obesity prevention and use that knowledge in obesity prevention with the considered population. The approach to accomplish the goal is to address achievement motivation through achieving EEG-based psychokinesis (also known as brain-robot interface). The methods to be used are: 1) building achievement motivation through the brain-robot interface achievement task and 2) counseling for participants and their parents regarding behavior and attitudes in relation to health and nutrition.

Design of Resilient and Efficient Supply Chain Logistics Network System to Mitigate the Impact of Disruptions in South Carolina

Dr. Jae Dong-Hong, principal investigator
Department of Industrial and Electrical Engineering

The goal of this proposed research is to develop an innovative framework for designing resilient, as well as efficient supply chain logistics networks (SCLNs) under the risk of disruptions. Developing such a framework is an important strategic decision that significantly affects the overall performance of supply chain risk management (SCRM) activities to mitigate the impact of disruptions.

Natural and Microbial Attenuation of Uranium (U) Contaminated Groundwater, Soils, and Sediments

Dr. Waltena Simpson, principal investigator
Department of Biological and Physical Sciences

The goal of this project is the characterization of natural microbial produced biosurfactants and polymers with respect to their chemical properties and interactions for metal and radionuclide remediation. The approach will utilize biological microcosms under aerobic and anaerobic conditions as test cells. This proposed research and development will include determination of functional diversity of subsurface groundwater microbiota under the influence of uranium (U) contamination, identify the associations and interactions between environmental variables and U(VI)-reducing microorganisms using microcosm and enzyme studies, and determine the impact of biosurfactants on U bioavailability through enzymatic studies.

Susceptibility of Insects to Gaseous Ozone: Flow Characteristics and Penetration of Ozone through Various Materials

Dr. Rizana Mahroof, principal investigator
Department of Biological and Physical Sciences

The research will investigate and evaluate the susceptibility of various life stages of economically important stored-product insects to different doses and exposure time to ozone and to establish a dose-time-mortality relationship. Further to characterize flow and efficacy of ozone on various construction surfaces and via packaging

South Carolina State University in cooperation with the U.S. Department of Agriculture
The 1890 Research and Extension Program at South Carolina State University prohibits discrimination in its programs on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, or marital or family status.
2019 Publication of 1890 Communications



SOUTH CAROLINA STATE UNIVERSITY 1890 EXTENSION PROGRAM

The 1890 Extension Program offers the majority of outreach programs and services to the citizens of South Carolina on behalf of SC State University. Extension's programs provide life-long learning opportunities that help rural and urban limited-resource clients improve their quality of living.

The 1890 Extension Program at SC State has an over 100-year history of providing outreach programs and services to help rural South Carolinians reach their full potential through wise resource management. While the Program began in 1897 as a primary agricultural-based initiative called the Farmers Institute for Negroes, the Program, which is part of a national network of cooperative extension programs, has adapted to meet the ever-changing needs of the state's citizens.



ADMINISTRATORS

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Mr. Edoe Agbodjan
ACTING 1890 EXTENSION ADMINISTRATOR

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Mr. Ishmel Washington
Senior Extension Director
Hampton Cluster

Mr. Darryl Johnson
Regional Extension Director
Williamsburg Cluster

Mrs. Demier Richardson-Sanders
Regional Extension Director
Education, Innovation & Support

Mr. Boyd Owens
Regional Extension Director
Anderson Cluster

SOUTH CAROLINA COUNTIES SERVED

- *COASTAL REGION*
Berkeley, Charleston and Dorchester
- *LOW COUNTY REGION*
Allendale, Beaufort, Colleton, Hampton and Jasper
- *MIDLANDS REGION*
Bamberg, Calhoun and Orangeburg
- *PEE DEE REGION*
Chesterfield, Dillon, Florence, Marion and Marlboro
- *PIEDMONT REGION*
Abbeville, Edgefield, Greenwood, McCormick and Saluda
- *SANTEE WATEREE REGION*
Clarendon, Georgetown, Sumter and Williamsburg
- *UPSTATE REGION*
Anderson, Greenville, Pickens and Spartanburg



(803) 536-8616

PROGRAM AREAS

FAMILY, NUTRITION & HEALTH

The foundation of our society is the family. Nationally and locally, health issues like obesity, diabetes, heart disease, as well as family conflict can affect the financial, emotional, and social well-being of the family. The emphasis of Family Life is to enhance the quality of living for South Carolina residents by providing research-based nutrition, diet, health, and food safety education; reinforcing family relationships with the teaching of effective parenting skills; improving the delivery of child care services; and teaching resource management to build and protect wealth over the life cycle.

COMMUNITY & ECONOMIC DEVELOPMENT

Helping South Carolinians develop their maximum potential in the workforce is crucial to economic development. The Adult Leadership and Community Development program is geared toward identifying business opportunities that mandate job creation and improve business and economic development through alternative, non-agricultural, and resource-based enterprises. Assistance is provided with business startups, business expansions, marketing, loan applications, and financial analysis.

EDUCATION, INNOVATION & SUPPORT

The Education Innovation & Support (EIS) Agents will develop, evaluate and refine high priority EIS educational programs and technical assistance activities; develop educational curricula and other important resources in the EIS arena; spearhead the development of issue-based action Teams (IBATs) that aligns with the current and emerging EIS-related needs and opportunities.

SUSTAINABLE AGRICULTURE & NATURAL RESOURCE DEVELOPMENT

Many farmers in South Carolina encounter economic challenges when they try to compete in large markets with limited resources. Cooperative Extension works to address the decline of small farms by providing farmers educational tools they can use to take a business approach to agriculture. Through the promotion of niche marketing, specialty crops, cooperatives, and entrepreneurial opportunities, small farmers are gaining the other skills to advance farm management and increase profit.

4-H & YOUTH DEVELOPMENT

Teens today have to make hard decisions when they are confronted with peer pressure, drugs, alcohol, and other social issues that impact their future. The 4-H and Youth Development Program is collaborating with schools and communities to deliver leadership and educational skills to help youth learn to make sound decisions and plan for success. Cooperative Extension programs focus on life skills development, camp experiences, career exploration, decision-making, financial planning, leadership, team building, community service, and critical thinking so that youth are prepared to meet the challenges of a global society.

SC State University



1890 Research & Extension



1890 Mobile Technology Unit

In keeping with the land-grant philosophy of delivering education and service to under-served populations, the 1890 Research & Extension Program employs the use of a stylized Winnebago, known as the 1890 Mobile Technology Center. The Mobile Technology Center has a 12-station computer lab linked to the Internet via a satellite and other state-of-the-art multimedia equipment. The Center is also handicap accessible. Children and adults who board the Mobile Technology Center receive one-on-one instruction from 1890 staff in the areas of cyber safety, mathematics, reading, keyboarding skills as well as learn how to operate a computer.

South Carolina State University, in cooperation with the United States Department of Agriculture, prohibits discrimination in its programs on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, or marital or family status.



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1890 Research & Extension (P210)

