Accountability Report Transmittal Form

Agency Name: Public Service Activities – Clemson University

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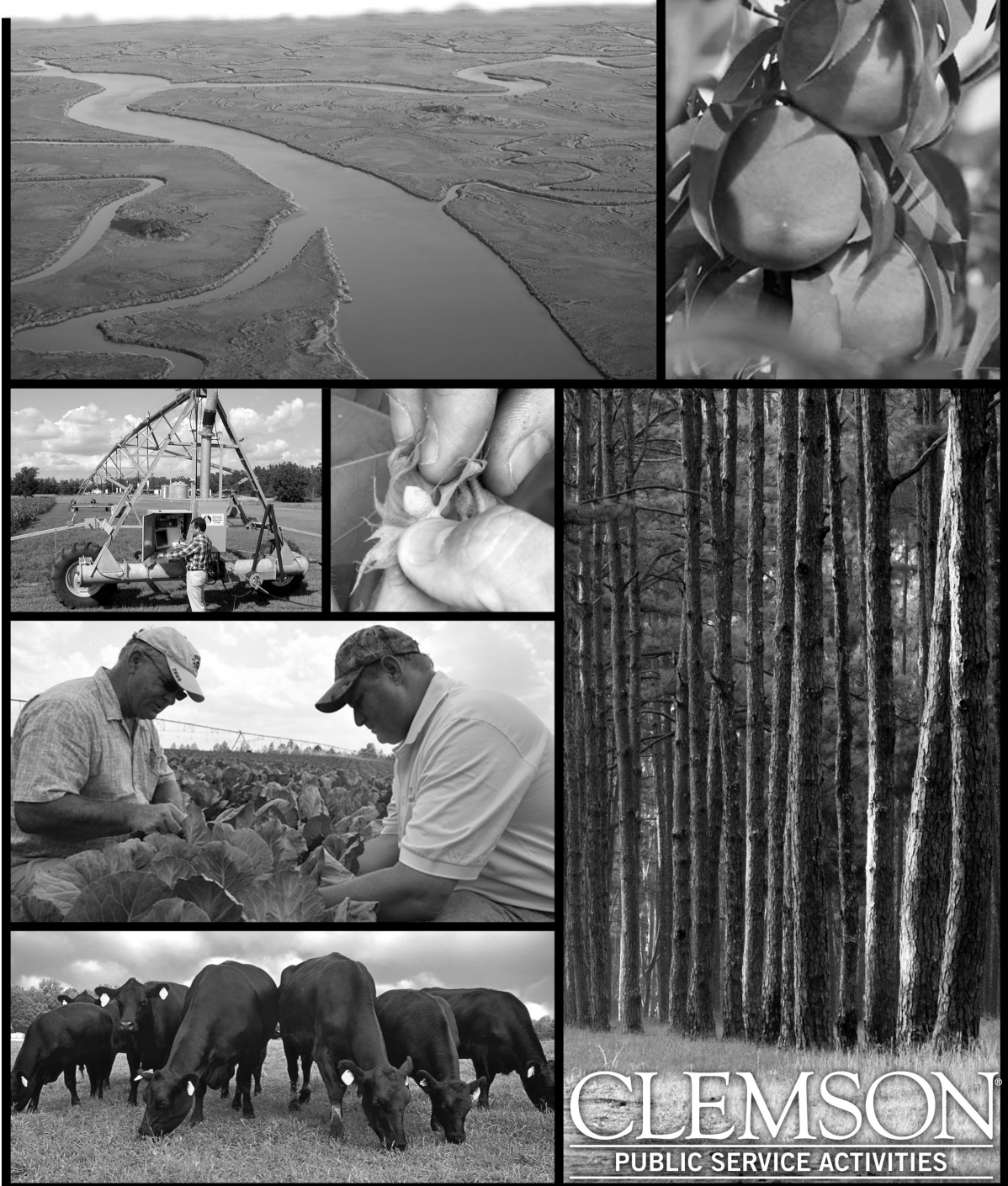
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Clemson University Public Service Activities

Budget and Control Board
Accountability Report for 2012-2013

CLEMSON®
PUBLIC SERVICE ACTIVITIES

BCB 2013 Cover Caption

About the cover pictures (clockwise from top): **SC Waterways:** Researchers are integrating Clemson's Intelligent River real-time sensor-based technologies into agriculture and natural resources projects to provide technology and networking capabilities to farmers, forest managers, and water district managers as a planning and management tool. **Peaches:** Clemson's new peach cultivar, CaroTiger was made available to growers in January 2013. **Forestry**: An Intelligent Forest site at the Baruch Institute is testing the technology for monitoring and managing forest growth and watershed dynamics. **Forage-fed beef research:** and extension programs are reducing production costs while maintaining bull performance in the Clemson Bull Test on campus and at the Edisto Research and Education Center. Clemson Livestock-Poultry Health certifies disease-free status to allow sales of South Carolina's $6 billion livestock and animal products. **Advanced Plant Technology**: Clemson has established an Advanced Plant Technology program based at the Pee Dee Research and Education Center, and added three plant breeders to develop improved varieties of South Carolina's major crops, including cotton, soybeans and peanuts. **Precision Agriculture** Clemson is developing new technology for production agriculture using GIS-based precise planting, fertilizing, pest control and harvesting methods. This requires expertise in modern agricultural equipment modification, data networking, and field application of technology.

Section I – Executive Summary

Clemson Public Service Activities (PSA) is dedicated to growing South Carolina's economy by enhancing agribusiness – the state's largest industry – through research, extension and regulatory programs. These programs for commercial producers complement the university's teaching commitment to develop the next generation of agribusiness leaders.

Clemson PSA scientists in the Experiment Station, Cooperative Extension, Livestock-Poultry Health and Regulatory Services develop and deliver research-based information to agribusiness enterprises across the state. Our scientists also collaborate with the USDA National Institute of Food and Agriculture to share information across the nation.

Working closely with South Carolina's agricultural producers and forestry and natural resources managers, Clemson PSA scientists identify issues and develop solutions to improve production practices and yields, enhance profitability, protect food safety and develop new technologies so our state's agribusiness industry can compete effectively in the global economy.

One of the challenges the state's growers have faced this year is an over-abundance of rain. This is a problem no one could have imagined during the last several years of drought. Unfortunately, Clemson PSA could not stop the rains; but our Extension agents have worked with growers to mitigate crop damage as much as possible.

We sincerely appreciate the funding provided by the SC General Assembly that makes these programs possible. Results of those investments are included in this report.

Sincerely,

John Kelly
Vice President for Economic Development

I-1 Mission

Vision

To be acknowledged as the foremost provider of practical new discoveries, outreach education and technical assistance in the areas of agribusiness productivity and profitability, economic and community development, environmental conservation, food safety and nutrition, and 4-H youth development to enhance the quality of life for South Carolina's citizens.

Mission Statement

Clemson University Public Service Activities is made up of four interrelated units: Experiment Station, Extension Service, Livestock Poultry Health and Regulatory Services. The overall agency mission is to conduct research, extension (knowledge transfer) and regulatory programs that:

- Advance the competitiveness of South Carolina's $34 billion agriculture and forestry industry
- Enhance the economic potential of rural communities
- Safeguard the food supply
- Preserve natural resources
- Prepare young people for the workforce through 4-H

Unique Background

Clemson University was founded in 1889 on Thomas Green Clemson's belief that education could create a better way of life for the people of South Carolina. The impact of Public Service Activities' educational programs, regulatory programs, and research projects goes far beyond the immediate recipient. As education, regulatory,

and research results are communicated and applied agronomic improvement occurs in our focus areas: agriculture, natural resources, food safety and nutrition, economic and community development, and 4-H youth development and animal and plant health results improve.

Public Service Activities (PSA) is at the core of Clemson's land-grant university mission of teaching, research, and public service. We are **part of a national USDA system of research and knowledge transfer**, with a mandate to improve the quality of life for the citizens of South Carolina by developing and delivering research and education programs that support the state's largest industry, the $34 billion agriculture and forestry (agribusiness) sector.

Steeped deeply in the history of Clemson University is its service to South Carolina as an economic engine through the land-grant university mission to generate and communicate new knowledge. Schejbal and Wilson (2008) describe land-grant university research and extension outreach in terms of not only being an economic engine; but contributing directly and in a multifaceted fashion to the common good. Land-grant universities generate and make accessible a great deal of the knowledge that drives our economy; they help develop an understanding of our society and the world for our students; and they help develop the personal, social, and human competencies without which, to use the words of Thomas Hobbes, life would be poor, nasty, brutish, and short. Land-grant universities represent the most original and distinctive contribution the United States has made to higher education (as suggested by Arnold Toynbee, the British historian).

What do we believe in?

Core Values

Science – Clemson PSA conducts research to discover innovative technologies, products and processes that can enhance agribusiness opportunities, build rural economies and communities, protect the environment and natural resources, improve the nutritional quality and safety of the food supply, and prepare South Carolina's youth to be productive citizens.

Service – Clemson PSA serves South Carolina's citizens through research, outreach and regulatory activities that enhance the quality of life in our state. We build partnerships with people, communities, industries and agencies to achieve our mission; we are responsive to their needs and we are proactive in our outreach.

Solutions – Clemson PSA believes that sharing and applying knowledge generated by scientific research is the best way to help South Carolina's citizens make informed decisions about the major issues that affect their lives.

Respect – Clemson PSA pledges to provide a work environment that fosters collaboration and respect among our employees and for those we serve, regardless of race, faith, ethnic heritage, gender, age, disability, or sexual orientation. We value the state's cultural diversity and strive to respect and incorporate that diversity in our staffing and services.

What do we do?

We provide science-based relevant research leading to discoveries specific to South Carolina's needs that are delivered to our clients through the most efficient communication system in the world; i.e., extension programs located in each county; the Internet; and other media outreach.

We, alone, provide research/outreach in our focus areas specific to South Carolina's cultural, geographic, environmental and climatic conditions.

Major Units:

Clemson Experiment Station scientists work to improve the quality of life for people in South Carolina, the nation and the world by providing science-based information on major issues facing decision makers. Research is conducted in laboratories, farms, and forests on the Clemson campus and at five Research and Education Centers strategically located in the state's distinct soil and climate regions. Areas of study include: animal production,

horticultural crops, agronomic crops, biotechnology, food safety and nutrition, community and economic development, water quality and quantity, and forest and natural resources.

Cooperative Extension Service meets the diverse needs of South Carolina citizens by delivering research-based information in agriculture, the environment, food safety & nutrition, economic and community development, and youth and families. South Carolina's citizens and PSA's stakeholders have direct input into decisions of the Extension System through statewide planning efforts and the needs identification process.

Livestock-Poultry Health Programs ensure the health and safety of livestock/poultry industries and companion animals, and protect the meat supply and public health of South Carolinians.

Regulatory Services protect the state from exotic and invasive species, ensure that pesticides are used safely, regulate the structural pest control industry, verify that fertilizer and lime meet standards and labeled guarantees, conduct programs for seed and organic certification, provide diagnosis of plant pests, and ensure readiness to respond to an agroterrorism event impacting the state's agriculture.

The Belle W. Baruch Institute of Coastal Ecology and Forest Science Institute scientists study coastal forested, riparian and wetland ecosystems, including wildlife, forestry, biogeochemistry, hydrology, microbiology, and sediment transport.

Powerful Impacts and Return on Investment

The achievements listed below only present part of the picture. PSA's long-term investments yield tremendous long-term benefits.

Public Service Activities are in every corner of South Carolina, a part of the very fabric of our society after more than 100 years of service.

- PSA accounted for **1,756 jobs** statewide**, $133.4 million** in economic output, **$9.6 million** in net local government revenue, and **$13 million** in net state revenue in 2010.
- **The Home and Garden Information Center and other PSA Websites generated 3.2 million website visits** in 2012-13.
- **4-H youth, by grade 8, are 1.6 times more likely to attend college** than their peers and are ranked 41% lower in risk/problem behaviors measures (Lerner et al. 2008).
- **$16 million annual personal-income impact** through 4-H programs that encourage leadership and educational achievement and discourage risky behaviors – based on 5% increase in the number of
- Agents covering **46 county extension offices deliver 7,116 programs reaching over 117,418 people** with over **219,407 community interactions** this year including commercial growers, livestock producers, forest and natural resource managers, institutional food services, homeowners and families across the state. **Eighty-four percent** of those participating in our programs **experienced an increase in knowledge** on the subject matter taught.
- Clemson University Official Variety Trials of all major crops conducted in multiple locations across the state potentially results in **an additional $26,777,400 in revenue** for South Carolina producers.
- SC peanut growers can **earn an additional $7.5 million** by following optimal digging guidelines outlined by Clemson researchers.
- Thresholds and spray techniques developed at Clemson are highly effective against the recently introduced bean plataspid and can **prevent over $22 million in losses** if utilized by growers.
- Cattle management research regarding grazing cattle on alternate forage during breeding season where wild-type infected tall fescue occurs could **increase production by $12 million.**
- Decades ago, large piles of used pesticide containers littered the SC landscape. Since the beginning of an aggressive Regulatory Services program over **2.88 million pounds of pesticide containers have been recycled**.
- **The Veterinary Diagnostic Center completed 93,848 tests and procedures** during FY12-13 in performing its animal and food safety diagnostic duties protecting the $6 billion SC animal industry.

I-2 Major Achievements from 2012-13

Powerful Impacts and Return on Investment

We believe that now is the most relevant time in South Carolina's history for the work of Clemson's Public Service Activities. As *Newsweek* reports in the August 23, 2010 issue*: The country that out-educates us today will out-compete us tomorrow, US Education Secretary Arne Duncan warned.* That's not just rhetoric. A recent study by McKinsey and Co. showed that the growing gaps in educational achievement between the United States and other leading nations *"impose the economic equivalent of a permanent national recession."*

According to a 2012 study conducted by Clemson's Strom Thurmond Institute for Government and Public Affairs, Clemson University's economic impact on South Carolina is more than $1.83 billion in economic output, nearly 25,000 jobs and a net return to state taxpayers of $77.4 million.

The report was commissioned to coincide with the 150th anniversary of the Morrill Act, which created the land-grant system of universities to expand access to higher education and support economic development – initially for the nation's agricultural and mechanical industries.

"From the beginning, Clemson University's mission has been to further the prosperity of South Carolina, and its campus has always been the entire state," said President James F. Barker. "This report provides just one indication of how large an impact Clemson has had and will continue to have on South Carolina's economic health."

Clemson's PSA accounted for 1,756 jobs statewide, $133.4 million in economic output, $9.6 million in net local government revenue, and $13 million in net state revenue in 2010.

The university also contributes $114.9 million in net local government revenue and $980.3 million in additional household disposable income. The figures are from 2010, the most recent year of the 10-year period analyzed.

PSA research, education, and community development programs directly affect South Carolinians. We recognize that PSA's unique programs are the key to continued rural economic recovery and success.

Achievements are presented first by newly appropriate SC General Assembly funding then, by PSA unit to include 1) Experiment Station, 2) Cooperative Extension Service, 3) Livestock-Poultry Health, 4) Regulatory Services, and 5) PSA Institutes.

Results of Recent State Investments

The S.C. General Assembly has generously supported Clemson PSA efforts to grow the economic impact of agribusiness, the state's largest industry. The results of recent appropriations are:

Advanced Plant Technology Program

Non-recurring funding from FY12-13 and FY13-14 is being used to renovate the 1980s laboratory infrastructure at the Pee Dee Research and Education Center. This center will serve as the base for a statewide program to improve existing crops and introduce new crops through both traditional plant breeding and molecular genetics methods. Recurring funding in the FY13-14 budget is being used to hire plant breeders with expertise in the state's major crops, including soybeans, peanuts and corn.

Current status: A contract has been awarded for the laboratory renovation, with a target completion date of 2015; and three research scientists have been hired. Additional research scientists and technical personnel will be hired as the laboratory facilities are completed and recurring funds are available.

Precision Agriculture

Recurring funding in FY13-14 is being used to develop new technology for production agriculture using GIS-based precise planting, fertilizing, pest control and harvesting methods. This requires expertise in modern agricultural equipment modification, data networking, and field application of technology.

Current status: The hiring process has begun for three research scientists. Additional research scientists and technical personnel will be hired as recurring funds are available.

Livestock & Poultry Health

Recurring funding in FY13-14 is being used to hire a veterinary pathologist and a quality control manager at Livestock-Poultry Health. This expertise will support the state's $1 billion-plus animal agriculture industry and maintain accreditation by the American Association of Veterinary Laboratory Diagnosticians.

Current status: The hiring process has begun for both positions.

EXPERIMENT STATION

http://www.clemson.edu/public/experiment_station/

Clemson's problem-solving research sustains companies and jobs and creates new economic development opportunities. The Experiment Station is part of a nationwide system of scientists working with the USDA National Institute of Food and Agriculture. We invest in creative, productive scientists that know how to identify and solve problems. As a result, Clemson researchers have produced more than 100 new varieties of food and fiber crops, as well as 50 patents.

Major achievements for 2012-2013 include:

- Researchers are integrating Clemson's Intelligent River real-time sensor-based technologies into agriculture and natural resources projects to provide technology and networking capabilities to farmers, forest managers, and water district managers as a planning and management tool. This technology can create a new high-tech industry in South Carolina.
    - The Intelligent River technology deployment began in the Savannah River, funded in part by an U.S. Environmental Protection Agency Grant, as a national model for monitoring river flow and water quality.
    - An Intelligent Farm site at the Edisto Research and Education Center is testing the technology for managing irrigation systems and fertilizer and pesticide applications, and will determine the effects on production costs and crop yields.
    - An Intelligent Forest site at the Baruch Institute is testing the technology for monitoring and managing forest growth and watershed dynamics.
- Continued adaptation of crop pests and changing climate conditions require ongoing crop improvements to develop varieties that are adapted to new challenges from pests and diseases, and can grow in soil that may be affected by increased salinity or other environmental challenges.
- Clemson has established an Advanced Plant Technology program based at the Pee Dee Research and Education Center, and added three plant breeders to develop improved varieties of South Carolina's major crops, including cotton, soybeans and peanuts. The program also focuses on emerging crops such as sorghum to identify varieties that grow well on marginal sites. In 2012, these crops covered more than 775,000 acres in South Carolina and generated annual sales of $350 million.
- Producing beef cattle in forage-based systems can reduce costs and environmental impact, and boost South Carolina's cattle production capabilities. Clemson researchers continue to address this issue on two fronts: 1) improved forage and pasture systems, and 2) selecting cattle breeds that are best adapted for forage feeding. Forages include alfalfa, cowpeas, chicory and pearl millet in addition to Bermuda grass, and produce beef that is lower in fat than grain-fed beef while just as tender. The Trask line of Hereford

cattle is improving cattle genetics by producing traits that complement the climate and pastures in South Carolina. In 2012 cattle production contributed $182 million to the state economy.

- Biofuels continue to advance in the United States as alternatives to petroleum-based fuels. Clemson researchers are working to identify switchgrass varieties that are best adapted for South Carolina growing conditions and to develop conversion technologies for this and other plant species. Research to develop cropping practices that optimize the economic and environmental sustainability of switchgrass production in South Carolina includes partnerships with USDA, the SC Energy Office, SC State University and Francis Marion University. These results are being used by farmers contracted by Carolina-Pacific LLC to produce switchgrass as a replacement for coal in European power plants. Research also has identified new treatments to convert plant materials to fuel. In addition, a sustainable biofuels pilot plant produced 3,000 gallons of biodiesel from waste cooking oils on the Clemson campus to replace nearly 20% of the diesel fuel used in the university's maintenance department vehicles.

- Other Experiment Station projects address diverse environmental and food and fiber issues ranging from water-borne pathogens to reestablishing traditional forest tree species. As these projects mature they will answer critical resource management questions and help improve the rural economy in South Carolina.

COOPERATIVE EXTENSION

www.clemson.edu/extension/

Since the national Extension Service was founded in 1914, the Clemson Extension Service has served the diverse needs of citizens through technology transfer and training programs. South Carolina's citizens and PSA's stakeholders have direct input into decisions through statewide planning efforts and a needs identification process. Extension partners with other agencies and organizations to best meet the needs of South Carolina's citizens. The State Extension Advisory Council provides ongoing input from our diverse clients.

Educational lessons and information were delivered through 219,407 contacts made by Extension personnel. Working across all 46 South Carolina counties, more than 117,418 participants attended 7,116 Extension programs.

Major achievements for 2012-13 include:

- The bean plataspid (kudzu bug), has been defined as an economic pest of soybeans, capable of causing yield losses of up to 50% if left untreated under extreme levels of infestation based on trials in South Carolina and Georgia. Thresholds and spray techniques developed at Clemson are highly effective and can prevent over $22 million in losses if utilized by growers.

- Cattle producers in South Carolina are frequently seeking methods to enhance profitability of their cattle operations. One method is to market cattle in uniform truckload lots of properly vaccinated, preconditioned cattle. Calves marketed using this method sell at higher prices. Groups of properly vaccinated, preconditioned cattle in source and age verified truckload lots sold for $0.09 per pound more than traditional weekly livestock auctions resulting in $50,285 in additional income for area cattle farms ($3,868 per farm).

- South Carolina has approximately 91,900 cattle grazing wild-type infected tall fescue each year; however, a toxin producing endophyte significantly decreases conception rates in beef cows. In a study examining pasture management practices to improve reproductive rates, grazing cattle on alternate forages only during the breeding season improved conception rate by approximately 20%. Using typical market prices from the past several years, calves (600lb) are worth $720 at weaning. The annual impact to the beef industry in South Carolina if cattle producers adopted this simple and straightforward management change would be $13,233,600. Accounting for the 25% more cattle conceiving in the first 30 days of the breeding season results in an additional $1,654,200 in revenue from increased market weights at weaning. Economic impacts calculated across the tall fescue belt where over 35 million acres of tall fescue are grown would be far greater.

- Over 14,147 individuals received gardening information by telephone or in person through the Urban Horticulture Center and the Home and Garden Information Center (HGIC) toll-free telephone line. In addition, the HGIC web site recorded 3,209,790 visits last year. Some 10,358 consumers and horticulture professionals participated in programs. Some 184 new Master Gardeners were trained and provided 34,998 hours of volunteer horticulture services to communities, which represents a $601,965 value of program support.
- Agents conducted 251 food safety programs for the general audience. Over 271 media programs were delivered covering topics of Food Safety, Nutrition, and Health. Agents distribute information via newspaper articles, websites, other external publications, and on Facebook, radio and television.
- In an effort to reduce food-borne illness, agents conducted ServSafe® food safety training for managers, supervisors, and other food handlers. 125 people received a course completion certificate, representing 110 food establishments. These food handlers can potentially affect 8,813 people. The National Restaurant Association has estimated that the average cost of a foodborne illness outbreak to an establishment is about $75,000. The approximate economic value of the trainings in South Carolina was $8,250,000.
- Over 68 contacts were made with food entrepreneurs, representing 13 food companies. Quality testing was conducted for 14 products. In addition, some 43 new or improved food products entered the market as a result of adopting Extension recommendations.
- Specialists are collaborating with NC State University to prepare a food safety manual in Spanish to target Spanish-speaking food processors.
- 4-H conducted 3,326 programs that reached over 69,171 youth and families. In addition, 4,508 adult volunteers were trained, who then trained youth in leadership development; hunting safety; plant and animal projects; science, technology and engineering projects; day and overnight camping; and nutrition, health and fitness. 4-H adults and teens contributed 27,048 hours of volunteer service, which represents a $465,225 value of program support.
- Research reveals that when children have hands-on experiences with nature, the results can lead to fewer incidents of anxiety and depression, improved self-esteem, enhanced brain development, and a sense of connectedness to the community and the environment. The South Carolina 4-H Small Garden Project involved youth from seven counties in the state. Participants were required to plant a minimum 100 square foot garden with a minimum of 3 crops and to keep a record book to account for costs and labor. Participants in another Summer Gardening Program made nutritious recipes with various fruits and vegetables from their gardens. Participants in the SC 4-H Forestry Clinic learned how to measure trees (diameter and height) and learned how to use various measuring devices. The Darlington County 4-H partnered with the Darlington County School District to establish and maintain two Habitat (Butterfly) gardens. The sites incorporated rainwater harvesting (rain barrels) for the purpose of irrigating. Participants in the program were taught the proper use of fertilizers and pesticides and how that related to water quality.
- 4-H partnered with local schools to implement the National Youth Science Day project, "EcoBots" in five schools with 95 elementary and middle school students. These students joined thousands of young people across South Carolina and the United States to become scientists for the day. Students worked in pairs to design a robot to clean up a fictitious toxic spill. No solutions were given to students to help them solve the contamination problem. Students were encouraged to use the scientific process, test hypotheses and theories, explore all ideas and possibilities with their respective partners, and discuss concepts such as costs of malfunctions and why robots are used instead of humans. Teams of youth demonstrated the use of critical thinking and problem solving in this three-part experiment. This project met SC science education standards. In 4-H, youth used math skills, critical thinking, and creativity, which are valuable life skills.
- Recent findings from the 4-H Study of Positive Youth Development indicate that young people in 4-H are three times more likely to contribute to their communities than youth not participating in 4-H. South Carolina 4-Hers donated no-sew blankets to Project Linus, an organization that hand makes blankets for critically ill children, raised funds for 4-H families in Oklahoma affected by the tornados, helped pack hero packs for SC Operation: Military Kids, made animal treats for animal shelters, collected needed

- items for animal shelters, conducted food drives, and visited nursing homes throughout the year. Some 38 youth were trained to be 4-H Ambassadors. Ambassadors represent 4-H to the public and are involved in writing and speaking to the media.
- The overall programmatic value of Extension volunteer service hours totaled $2,576,653.
- Extension sustainable forestry educational programs were delivered to 3,063 people. Landowners participating in Extension programs managed over 572,600 acres of forestland. In one county, landowners indicated that the Extension programs would help them save $147,000 and earn $229,000 in the future when managing longleaf pine on their land. Extension programs increased the number of acres of forests in South Carolina using sustainable forestry practices, increased biodiversity in the state, restored longleaf pine ecosystems, and facilitated the conservation of ecosystems. Specialists conducted a webinar in conjunction with the US Forest Service titled The Forest Service Toolbox. The Master Tree Farmer and the Master Wildlifer online programs were also taught. A specialist worked with the IRS to review and revise the Hardwood Timber Audit Technique Guide to benefit tax preparers and forest landowners.
- Master Naturalist volunteers provided over 5,922 hours of service, which equates to a value of $101,858 in program support. SC Master Naturalists have participated in nationwide citizen science projects such as monarch watch, the backyard bird count, monitoring loggerhead sea turtle nest, eradicating Fire Ants and other exotic invasive plants, renovating and maintaining trails, restoring habitats and cleaning up nesting boxes.
- Researchers have developed a water management plan that can help SC orchards reduce water usage by 40% while increasing yield and fruit quality.
- Some 3,246 people participated in Leadership programs such as Palmetto Leadership, Senior Leadership, and Junior Leadership. Participants strengthened their community awareness and ability to access community resources, built partnerships, and strengthened their capacity to respond to future issues and opportunities. Participants have a greater knowledge about the county in which they live and/or work including education, economic development, healthcare and social issues. Approximately 70% of the graduates were still involved in a responsible community project three years after graduation. Graduates of the leadership class have been elected or appointed to serve in leadership such as county council seats, municipal officers, board directors, community action groups, judges, and task forces to help the community. Many have also been inspired to write books detailing local history, assist in local schools as tutors, direct operations for Habitat for Humanity, and assist with affordable housing, and town fundraisers.
- Several communities throughout the state have expressed the need for greater local foods system development and planning. Through the alignment of market operations, Extension was able to leverage public resources for advertising, management, marketing, programming and training related to farmer's markets. Project partners were able to ensure consistency of regulations and applicable guidelines, thereby streamlining the participatory process for market producers and vendors. As a result, a much broader pool of producers and vendors have been engaged to participate in each market increasing the impact of each market. The total combined economic impact for the farmers markets in South Carolina was about $10 million.
- Over 435 water quality and quantity and water resource educational programs were conducted reaching over 9,035 people such as students, from elementary to college, USDA Forest Service staff, governing boards for local municipalities and community organizations. Faculty collected water samples from burned sites for analysis for the USDA Forest Service Forested Wetland Center and discussed the impacts of forest fire on water quality. They conducted a study for the National Park Services about the impacts of microplastics on the health of wildlife and environmental qualities. A design was produced for a rock weir in a drainage ditch for the Horry County Stormwater Management Program.
- Fifteen water quality and/or quantity best management practices were installed as demonstrations and over 2,300 pounds of trash were removed from regional waterways. In an effort to help better protect the South Carolina's natural resources, Clemson University's Home and Garden Information Center has launched a fact sheet series called H2Ownership that provides solutions to today's water resource challenges. The series is available as a free download from the website.

- Certified Erosion Prevention and Sediment Control Inspector courses were conducted to educate field personnel on the proper installation, maintenance, and inspection of erosion prevention and sediment control measures at construction sites. These courses generated over $185,000 in externally derived revenue, which was used to pay graduate student stipends, travel, equipment, and supplies. Over 5,000 people have successfully completed the certification examination.
- The South Carolina Water Resources Conference, which is coordinated by Clemson University's Center for Watershed Excellence (www.clemson.eduwatershedcenter) in conjunction with a statewide planning committee, included state level stakeholders and legislators. The conference provided an integrated forum for discussion of water policies, research projects and water management in order to prepare for and meet the growing challenge of providing water resources to sustain and grow South Carolina's economy, while preserving our natural resources.

LIVESTOCK-POULTRY HEALTH

http://www.clemson.edu/lph/

The Livestock-Poultry Health (LPH) program of Clemson University has a major role in protecting the health of food animals, other livestock, and companion animals. LPH also plays a role in the quality of life for humans. LPH is composed of three areas of service; Animal Health Programs, SC Meat and Poultry Inspection, and the Veterinary Diagnostic Center. Daily functions of LPH include conducting constant surveillance for diseases that affect both man and animals, providing the diagnostic expertise that allows for treatment and eradication of disease of domestic animals, inspecting/testing the processing of foods of animal origin, and coordinating state agricultural/animal emergency response as lead agency of ESF-17. The diagnostic laboratory also provides veterinary diagnostic support for wildlife.

Major achievements for 2012-13 include:

- **Animal agriculture in SC represents over $6 billion and 37,253 jobs in the overall SC economy** with a $1.24 billion and 11,782 job direct economic impacts. LPH has responsibilities that are integral to this economy which protect and monitor the health of all livestock and poultry in South Carolina and contribute significantly to its continuation and growth.
- Animal Health Programs personnel made 632 inspections at livestock auction markets, after-hours markets, dealers, and miscellaneous sales such as flea markets. These inspections are part of the requirement for **maintaining the state's "disease free"** status and are coordinated with USDA.
- "Disease free" status improves access to both interstate and international markets. For the **SC poultry industry, whose exports were valued at $145.8 million in 2009,** monthly letters were issued certifying South Carolina's status for certain poultry diseases. A total of 245 of these letters were signed by the state veterinarian during FY12-13 as a condition for import to certain countries.
- **SC Ag-Watch** program led by LPH is providing training to livestock owners about improved biosecurity practices, foreign animal disease awareness, and notification procedures. This approach emphasizes prevention of disease along with the traditional roles of disease surveillance, control, and eradication. South Carolina Ag-Watch Manuals continue to be available and are used by state and local emergency managers as a reference for agricultural emergencies.
- LPH continued work on the **Mid-Atlantic Secure Milk Supply Project** in SC along with the State Veterinarians in TN, NC, VA, MD, WV & DE. This project is developing a regional plan among these states that should mitigate potential economic losses of non-infected, volunteer participant dairy farms during a FMD outbreak without significantly increasing the likelihood of FMD spread. During FY 12-13, LPH completed 9 onsite field tests of the proposed audit documents with the active cooperation and participation of 6 SC dairy producers, 2 SC milk haulers and 1SC milk processing plant. In SC this project is a collaboration of all SC industry segments.
- The **Veterinary Diagnostic Center** completed 93,848 tests and procedures during FY12-13 in performing its animal and food safety diagnostic duties. Of these, 92,656 were related to regulatory duties and production animals; the remaining 1,192 were from companion animals and wildlife.

- LPH enhanced understanding of the importance of **food safety through outreach programs** presented by SC Meat and Poultry Inspection to gatherings of the South Carolina Association of Meat Processors, South Carolina Interagency Food Safety Council, South Carolina Department of Agriculture, South Carolina Department of Health and Environmental Control, SC Pest Awareness & Risk Assessment Committee, the SC Agro-terrorism & Food Safety Subcommittee and the SC New and Beginning Farmers Program.
- SC Meat-Poultry Inspection completed its **annual audit** by the US Department of Agriculture, Food Safety Inspection Service of its self-assessment review. SC Meat and Poultry Inspection program continues to be found to exceed or to be equal to the federal program. Department activities included 100% on-line inspection during slaughter operations on 2,050 slaughter days of approximately 28,489 livestock and over 4.1 million poultry. Additionally, during daily inspection in 80 slaughter and processing facilities, 70,979 individual inspection procedures were performed.
- A three-day **Hazard Analysis Critical Control Point (HACCP)** training session was conducted by Meat-Poultry Inspection. There were 18 meat and poultry industry personnel from South Carolina and North Carolina that successfully completed the session.
- National and international recognition increased as professional staff were appointed to serve on the Secretary's (USDA) Advisory Committee on Animal Health, American Veterinary Medical Association (AVMA) Animal Agriculture Liaison Committee, National Animal Health Information Technology Board (USDA), Research Advisory Committee for the American Jersey Cattle Club Research Foundation, as Chair of US Animal Health Association (USAHA) Committee on Transmissible Diseases of Poultry, as Co-Chair of the Histopathology subcommittee of the American Association of Laboratory Diagnosticians Pathology Committee; Secretary-Treasurer of National Association of State Meat & Food Inspection Directors, Third Vice-President of USAHA; elected to AVMA House of Delegates, President-elect of American Association of Small Ruminant Practitioners, Parliamentarian of American Association of Bovine Practitioners, Board of the SC Horseman's Council, Vice President of SC Sheep Industries, Board and Executive Committee of USAHA, Executive Board of the SC Association of Veterinarians (SCAV), Chair of the Large Animal Academy for SCAV.
- LPH maintained AAVLD laboratory accreditation and met NVSL accreditation standards for all technicians to be proficiency certified.

REGULATORY SERVICES

www.clemson.edu/public/regulatory/

Regulatory Services protect the state from exotic and invasive species, ensure that pesticides are used safely, regulate the structural pest control industry, verify that fertilizer and lime meet standards and labeled guarantees, conduct programs for seed and organic certification, provide diagnosis of plant pests, and ensure readiness to respond to an agroterrorism event impacting the state's agriculture.

- A special U.S. Environmental Protection Agency (EPA) grant of $35,000 was awarded to the Department of Pesticide Regulation (DPR) to support a project entitled *Integrated Pest Management (IPM) in Schools: South Carolina School District Assessment and Improvement*. Leslie Godfrey, DPR's Reduced Risk Specialist, is leading and coordinating the project. Some major progress has been made to this point. Twelve schools in three school districts are involved in the EPA-funded School IPM pilot program. Richland District One, with 49 schools and 23,945 students; Kershaw County Schools, with 19 schools and 10, 345 students; and Orangeburg District Five, with 15 schools and 6,856 students, were chosen for the pilot program. Pest management audits (inspections and reports) have been performed in each of the 12 schools with assistance from personnel from Texas AgriLife Extension and Clemson University's Dept. of Entomology. Insect monitoring traps were placed in each school. These traps are being checked monthly by Leslie Godfrey, and insects found are identified and recorded in an Excel file. This information is shared with the districts, and the pest management teams. Six training sessions have been provided for staff in the respective districts.

- DPR **collected 221,332 pounds of used pesticide containers for recycling**. Since the program began in 1993, over 2.88 million pounds of pesticide containers have been recycled, or over three million individual containers. The program helps protect the environment from possible pesticide contamination and unnecessary filling of waste landfills in the state.
- A new **Private Pesticide Applicator Examination** was compiled to correspond with the new Private Applicator training developed by Dr. Bob Bellinger, Clemson University Extension Pesticide Education Coordinator. The new examination has been pilot-tested, and no problems have been encountered. It now is being printed for distribution to Extension Offices throughout the state.
- The Department of Pesticide Regulation and the South Carolina Department of Agriculture are cooperating in a collaborative effort to **collect and dispose of waste pesticides in SC**. This is a very important initiative because it will prevent the unnecessary dumping and other inappropriate disposal of old, unused, and discontinued pesticides in the environment. Several successful collections already have been held in SC.
- In conjunction with the South Carolina Pest Control Association as well as other stakeholders, the Department of Pesticide Regulation **revised the Official South Carolina Wood Infestation Report.** This document generally is required by lending institutions to disclose the presence or absence of wood destroying organisms in a structure. This endeavor was undertaken with the goal of making the document consistent with changes to the South Carolina Code of Regulations regarding said report.

Major Accomplishments for the Department of Plant Industry include the following.

- Reduced turnaround time for fertilizer samples from 60 days in FY 2010 to 16 days in FY 2013.
- Reduced the overall deficiency rate of fertilizers sold in SC to 13% in FY 2013 from 16% the previous year.
- Diagnostician for the DPI Plant Problem Clinic conducted two diagnostic workshops in Cambodia as part of the IPM Collaborative Research Support Program.
- The molecular biologist with DPI's Molecular Plant Pathogen Detection Lab developed and is testing a new real time PCR method for differentiating European from Africanized honeybees.
- Initiated an education and outreach program, "Junior Invasives Program," to train youth in invasive species survey techniques.
- Developed a smartphone app in conjunction with the University of Georgia that allows users to identify and report sightings of invasive species and map their distribution.
- Increased the number of certified organic operations from 123 in FY 2012 to 156 in FY 2013, resulting in a 35% increase in revenue generation.
- At the request of USDA, DPI's Molecular Plant Pathogen Detection Lab has been designated as the official Eastern US analytical lab for the USDA-APHIS-CPHST survey of fruit phytoplasma diseases.
- Initiated online data management programs for fertilizer registration, licensing and tonnage reporting and for nursery licensing and inspection.

BARUCH INSTITUTE FOR COASTAL ECOLOGY AND FOREST SCIENCE

http://www.clemson.edu/baruch/

The mission of Clemson University's Belle W. Baruch Institute for Coastal Ecology and Forest Science is to advance sustainable coastal environments through science. The vision of the Institute is to become a wellspring of knowledge addressing human needs within sustainable coastal environments.

- To support faculty research efforts, **funding agencies** include the National Science Foundation, U.S. Environmental Protection Agency, National Park Service, U.S. Geological Survey, U.S. Department of Interior, U.S. Fish and Wildlife Service, USDA-NRCS, SC Sea Grant, Andrew W. Mellon Foundation, U.S. Forest Service, SCDHEC Bureau of Water, Pee Dee Research and Education Endowment, Pate Foundation, and National Audubon Society. **Collaborative efforts** aside from internal university partners

include projects with the U.S. Geological Survey, the U.S. Forest Service, Horry County Stormwater Management, Georgetown County Public Works, Waccamaw Regional Council of Governments (COG), City of Florence, City of Conway, City of Aiken, SC Sea Grant, North Inlet National Estuarine Research Reserve, the College of Charleston, the University of South Carolina, N.C. State University, Auburn University, the University of Georgia, Ohio State University, and Coastal Carolina University.

- National and international recognition increased as faculty were invited to make presentations at Halocarbon Research Unit of the Germany Science Foundation, the Society of Wetland Scientists, and the Soil Science Society of America. Faculty hold offices in the American Ecological Engineering Society (AEES) and Society of Wetland Sciences; serve on the Negril Morass Restoration Committee (Jamaica); and serve as manuscript and proposal reviewers for a number of journals and agencies. William Conner was presented with the 2013 President's Service Award by the Society of Wetland Scientists.

- Institute faculty support local and regional communities by serving on the Science Advisory Board and Board of Directors of the Winyah Rivers Foundation, the Murrells Inlet Watershed Plan Advisory Committee, and as technical advisors for the SC Coastal Low Impact Development (LID) Guidebook currently in preparation by the ACE Basin National Estuarine Research Reserve (NERR).

- Anand Jayakaran was selected from a national pool of applicants to attend the "2013 Training workshop: Software tools and strategies for managing sensor networks" sponsored by the Long Term Ecological Research Network (LTER). He also earned a Professional Engineering Licensure (Civil) in the state of South Carolina.

- With partners from campus along with coastal Extension agents, Institute faculty received Lever Initiative funding from Clemson PSA to develop new training programs for professionals, including a Stormwater Management Practice Inspection and Maintenance course.

- Collaborated with the Belle W. Baruch Foundation to conduct Vanishing Firefly Project, and collaborated with faculty on campus to develop an iphone App for firefly surveys, a project to educate the public on land use changes on environmental quality and wildlife habitat.

- Collaborated with Waccamaw River Keeper and Waccamaw Middle School to offer service learning opportunities to local students, particularly under-represented students, to motivate them to consider pursuing higher education and careers in science and engineering.

- Dan Hitchcock continued to be engaged in an international research and education partnership with Colombian organizations by participating in a climate change and renewable energy education program delivered to nearly 1,000 students in Medellín and the Urabá region of Colombia, as well as mentoring an Clemson undergraduate student who conducted research in San Andrés, Colombia last summer through the SC Life International Research Program.

- Support for students included that for 10 graduate students, 3 post-docs, and 7 undergraduate students. Doctoral student Gavin Blosser was awarded a Wade Stackhouse Graduate Fellowship.

I-3 Key Strategic Goals for Present and Future Years

PSA focus areas complement the University's 10-year goals in the Southern Association of Colleges and Schools (SACS) assessment procedures and in the USDA five-year plan of work. All of the units within PSA have aligned their programming, funding, evaluation, and accountability functions around these five focus areas, which are then aligned with Clemson University's academic plan:

Academics, research and service	Campus life
Student performance	Educational resources
Clemson's national reputation	

The academic plan focuses on eight broad emphasis areas that foster collaboration and promote the integration of teaching, research, and service. It also encourages programs that provide interdisciplinary research and service venues, unique platforms for enhanced scholarship, and increased opportunities for graduate and undergraduate students. These emphasis areas are:

- Leadership and Entrepreneurship
- Automotive and Transportation Technology

- Information and Communication Technology
- Family and Community Living
- Advanced Materials

- General Education
- Biotechnology and Biomedical Sciences
- Sustainable Environment

Central Strategy

PSA is deeply appreciative of the first new recurring-funding and the second year of the absence of a state appropriation reduction, since the downturn in the economy beginning in 2008.

As we celebrate the hopeful rebuilding of funding loss since the onset of this long recession, continued service to our clients was possible through careful planning. This planning allowed us to meet our client's needs, keep all of our Research and Education Centers and Cooperative Extension offices open, meet our regulatory legislative mandates, and seek alternative funding for our institutes. We continue to focus state revenue on our core programs in agriculture and natural resources.

Goals/Objectives/Performance Measures

Our strategic objectives are to discover and deliver relevant new knowledge in our five focus areas: agriculture, community, environment, food, and youth. The results of these goals/ objectives/performance measures are highlighted in the Major Accomplishments and Results section, but in general report results in the following areas.

Clemson Cooperative Extension Service

- Number of client interactions
- Programs offered and participation frequency
- Percent knowledge gained due to program participation
- Acres of SC farm and forest land affected by programs
- Volunteer hours and contributions

Clemson Experiment Station

- Number of proposals processed
- Amount of grants funded
- Number of disclosures (official announcement of potential invention)
- Number of patent applications or awards
- Number of technical papers and contributions published

Livestock-Poultry Health

- Disease-free status
- SC livestock premises registered
- Maintenance of National Veterinary Services Laboratory and American Association of Veterinary Laboratory Diagnosticians laboratory accreditation
- Maintenance of equivalency with USDA-Food Safety & Inspection standards

Regulatory Services

- Number of phytosanitary certificates issued and accepted without problem
- Number of nurseries inspected and certified to ensure freedom from pests
- Number of plant pest surveys conducted to detect and mitigate new pest introductions
- Number of pesticide inspections for safe use
- Number of Pesticide Applicator Licenses issued
- Percentage of structural pest control operators found to be in compliance with regulations

- Nutrient deficiency rate and number of fertilizer samples procured and analyzed, including speed of analysis
- Percentage of Certified Seed Lots meeting standards
- Organic Certification Metrics

Institutes

- Number of proposals processed
- Number of publications, both research and policy-oriented
- Other noteworthy accomplishments in Section I-2

Strategies 2012-2013

The Clemson Experiment Station and Extension Service leaders developed and implemented strategic plans that focus state funds on agriculture, forestry and natural resources programs that support South Carolina's $34 billion agribusiness sector. In addition, the Experiment Station moved to increase funding from non-state sources. Our programs are emphasizing economic development in South Carolina by seeking ways to sustain and grow our existing agriculture and natural resources industry and by providing research and Extension support to attract new industries to the state.

We are focusing our research investment on 3 principal topics: Forested Watersheds, Advanced Plant Technology, and Precision Agriculture. We are continuing our programming in other areas including:

Experiment Station

- Develop focused state-wide programs at each of the Research and Education Centers
    o Forested Watersheds at the Baruch Institute in Georgetown
    o Precision Agriculture at Edisto REC in Blackville
    o Advanced Plant Technology at Pee Dee REC in Florence
    o Vegetable and fruit programming at Coastal REC in Charleston
- Increased the level of external funding
    o Experiment Station scientists were awarded 164 grants worth $23,306,021 in FY10-11
- Continue assessment of all animal farms programming

Extension

- Keep all Extension county offices open
    o Establish priority hiring system to address the most critical needs
    o Utilize in-office program assistants
- Continue to reduce operating costs and increase external support for programing

Program Integration

- Establish a system to assess program impacts by county, region and statewide.
- Develop a system of metrics and benchmarks to continuously assess program progress.

I-4 Key Strategic Challenges

Challenges Overview

PSA maximizes discovery and delivery of new knowledge through science-based relevant research leading to discoveries specific to South Carolina's needs that are delivered through extension programs in our focus areas to advance the competitiveness of the agriculture and forestry industry, enhance the economic potential of rural communities, safeguard the food supply, preserve natural resources and prepare young people to become productive citizens.

PSA's mission must be accomplished within the current economic climate. While the absence of funding cuts in the last two legislative sessions are aiding the rebuilding of PSA, careful planning has allowed us to continue to serve South Carolina, despite severe cuts beginning in 2008 which left us seriously understaffed in some of our core agricultural areas. There is still a need for increased research, extension, and regulatory funding to prepare for the future of South Carolina's vibrant agribusiness sector, attract new industries and research partners, and build the knowledge-based economy of South Carolina.

I-5 How the Accountability Report is Used to Improve Organizational Performance

The purpose of assessment and accountability is to evaluate performance and make improvements as all organizations strive to evolve. Assessment helps ensure that planned activities, measures, outputs and outcomes are met and improved. This increases the efficiency, the effectiveness, and/or the reach of an organization. New initiatives are identified to address a need by a PSA constituency.

PSA believes this report serves the public well in explaining our service to the state and its citizens. Consideration of the goals and initiatives described herein occurs throughout the year in formal and informal settings.

Results from this report are used to improve PSA through University reporting requirements on its internal accountability program, WEAVE (see Section III-2.3 and III-4.6) for additional information.

Section II – Organizational Profile

II-1 Main Products and Services and the Primary Delivery Methods

As stated in the Executive Summary, we provide science-based relevant research leading to discoveries specific to South Carolina's needs, which are delivered to our clients through the most efficient communication system in the world. Our primary clients are the citizens of South Carolina who rely on this knowledge to manage and improve their farms, businesses, and communities.

PSA utilizes the following primary units to connect with the public:

- Clemson Experiment Station (Agricultural Research)
- Cooperative Extension Service
- Regulatory Services
- Livestock-Poultry Health Programs
- Baruch Institute for Coastal Ecology and Forest Science

PSA units actively strive to solicit ideas and issues from SC citizens. Through websites, public forums, advisory committees, and thousands of programs, PSA personnel are active across South Carolina *for* South Carolina. Faculty and specialists in these units are active on state boards, commissions, task forces and other committees that can benefit from researchers' expertise.

PSA is fully committed to strengthening its services through technology and greater utilization of its staff in all of the above units. Each unit develops programs, training and educational materials for citizens and constituent groups.

II-2 Key Customers Segments and Their Key Requirements/Expectations

PSA's customer segments include, but are not limited to the following:

- Citizens of South Carolina
- Agricultural producers and growers
- State, local, and county agencies
- Natural resource/forestry managers

- Communities
- Local and county governments
- Pesticide and fertilizer sellers and users
- Practicing veterinarians

PSA programs are accessible to all citizens. The mission and goals of the organization lend themselves to people who are associated with agriculture, agricultural and forest products, business and industry, landowners and natural resources managers, families and youth, limited resource families, and community leaders.

In order to continually assess our own performance and ensure we meet the expectations of our customers, surveys and follow-up calls to participants are part of our regular processes. Customer comments are considered vital to PSA success, and surveys note the following as important expectations:

- Accurate and practical information
- Timely programs based on important public issues
- Ethical approaches with clients
- Thoughtful and efficient use of financial resources
- Educational opportunities for all ages
- Excellent customer service
- Accountability

II-3 Key Stakeholders (other than customers)

PSA's key stakeholders include, but are not limited to, the following:

- Citizens of South Carolina
- Federal, state, and local governments
- Federal, state, local, and private granting agencies
- PSA employees

- PSA suppliers
- Private donors
- Commodity boards and associations
- Agriculture and forestry including industry and related associations
- Advisory board

II-4 Key Suppliers and Partners

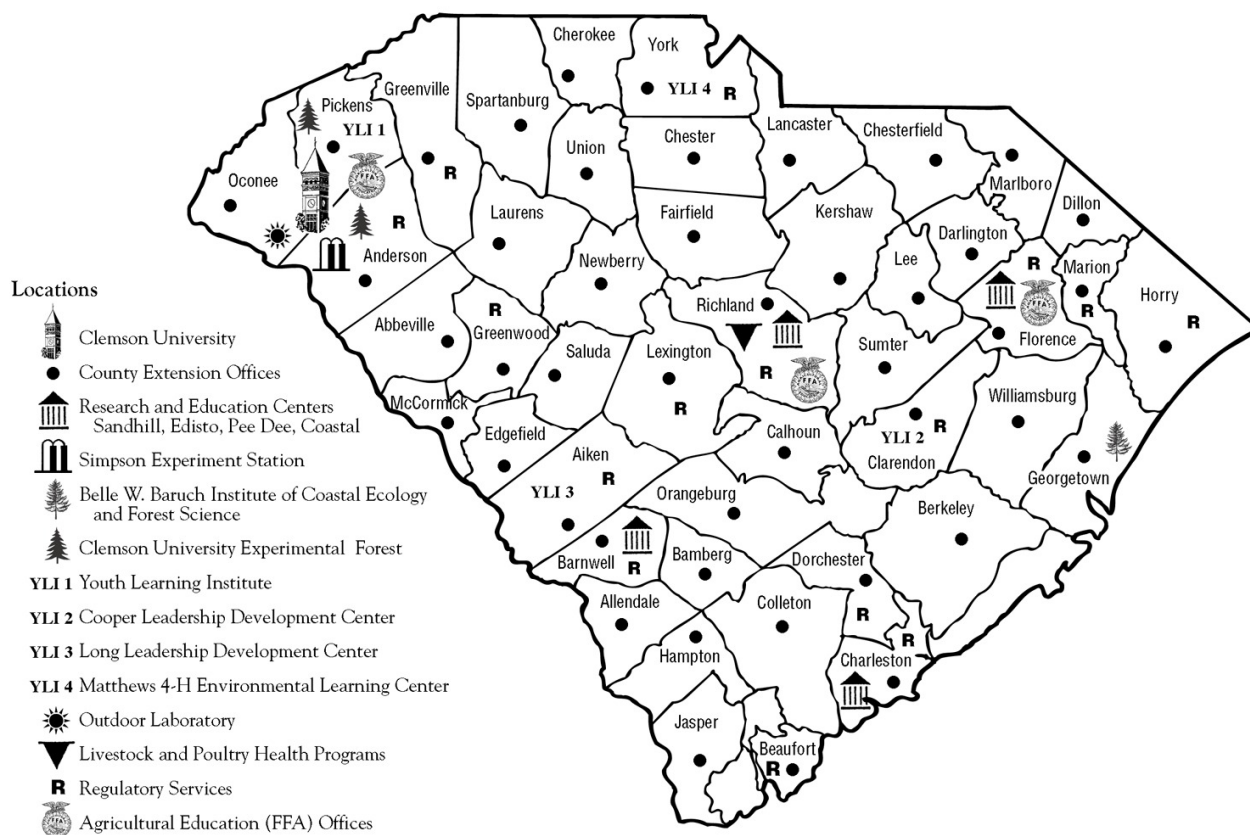PSA's key suppliers and partners include, but are not limited to, the following:

- Federal, state, local, and private granting agencies
- Federal, state, and local governments (direct funding allocations/support for infrastructure)
- Private donors
- Strategic partners with federal, state, and local agencies and the agribusiness sector
- Vendors maintained in the Clemson University accounting information system

II-5 Operation Locations (Figure II-1)

Although Public Service Activities continues to reorganize and consolidate its services to better serve our citizens, every county in the state is served by an Extension office through a cooperative agreement with local county governments. Research activities are primarily carried out at the Clemson University campus but much is done at locations throughout the state. Research and Education Centers (RECs) are located in areas where the soil conditions and climates best represent specific challenges faced by our stakeholders in the surrounding area. Below is a list of the sites where much of this activity takes place:

Aiken County	W. W. Long Leadership Center
Barnwell County	Edisto Research and Education Center
Charleston County	Coastal Research and Education Center
Clarendon County	R.M. Cooper Leadership Center
Florence County	Pee Dee Research and Education Center
Georgetown County	Baruch Institute of Coastal Ecology and Forest Science
Pickens County	Clemson Experimental Forest
	SC Botanical Garden
	T. Ed Garrison Livestock Arena
	Youth Learning Institute
Richland County	Sandhill Research and Education Center
	Clemson Institute for Community and Economic Development
	Livestock-Poultry Health
York County	Matthews Environmental Center
Dominica, West Indies	Archbold Tropical Research and Education Center

II-6 Number of Employees

As of August 2013, PSA had 552 employees in 463 FTE's. Of these employees, 29 FTE positions are funded from grant funds.

Type	Headcount	FTE
Classified	295	264
Unclassified	257	199
Total	**552**	**463**

II-7 Regulatory Environment Under Which Your Organization Operates

PSA operates under federal and state mandates. Most mandates are listed below, with links to websites that better explain the full extent of what is expected of PSA. The federal mandates require extensive reporting to comply with federal funding and compliance regulations. Although not listed below, PSA is also subject to the University's academic reporting requirements. For instance, PSA is required to meet requirements of the federal Department of Education through Southern Association of Colleges and Schools (SACS) accreditation requirements as well as specific requirements for research.

The mandates listed below are fully described in Appendix.

SECTION 59-119-10. Acceptance of the Clemson devise and bequest.

SECTION 59-119-20. Clemson Agricultural College established; location and studies.

SECTION 59-119-120. Division of public land fund under act of Congress.

SECTION 59-119-140. Annual report by board.

SECTION 59-119-165. Transfer of certain agricultural funds to Clemson-PSA (Public Service Activities); use of funds; report.

SECTION 4-11-50. Each county shall have farm and home demonstration agents.

Mandates

USDA Cooperative State Research, Education and Extension Service www.csrees.usda.gov/

Morrill Act 1862 www.csrees.usda.gov/about/offices/legis/morrill.html

Hatch Act of 1887 www.csrees.usda.gov/about/offices/legis/pdfs/hatch.pdf

Smith-Lever Act 1914 www.csrees.usda.gov/about/offices/legis/pdfs/smithlev.pdf

Legislative Authorization for Clemson Public Service Activities

The below Sections of the South Carolina Code of Laws authorizes the following.

- Extension Agricultural Service Laboratory (ASL) Section (Section 46-7)
- Livestock-Poultry Health Programs - Animal Health and Diagnostic Laboratory (Section 47-4-10 et seq.)
- Livestock-Poultry Health Programs - Meat and Poultry Inspection (Section 47-17 and 47-19)

- Regulatory and Public Service Programs: Plant Industry (Sections/Chapters of the SC Code of Laws authorize the above listed regulatory functions: 46-7, 46-9, 46-10, 46-21, 46-23, 46-25, 46-26, 46-33, 46-35, 46-37)
- Regulatory and Public Service Programs - Pesticide Regulation (Section 46, Chapters 1, 7, 9 and 13 as well as the Federal Insecticide, Fungicide, & Rodenticide Act, the Worker Protection Standard Regulations and the Endangered Species Act)
- Agricultural Biosecurity (Sections 46-7-30 et seq. and Section 46-9)

II-8 Performance Improvement System(s)

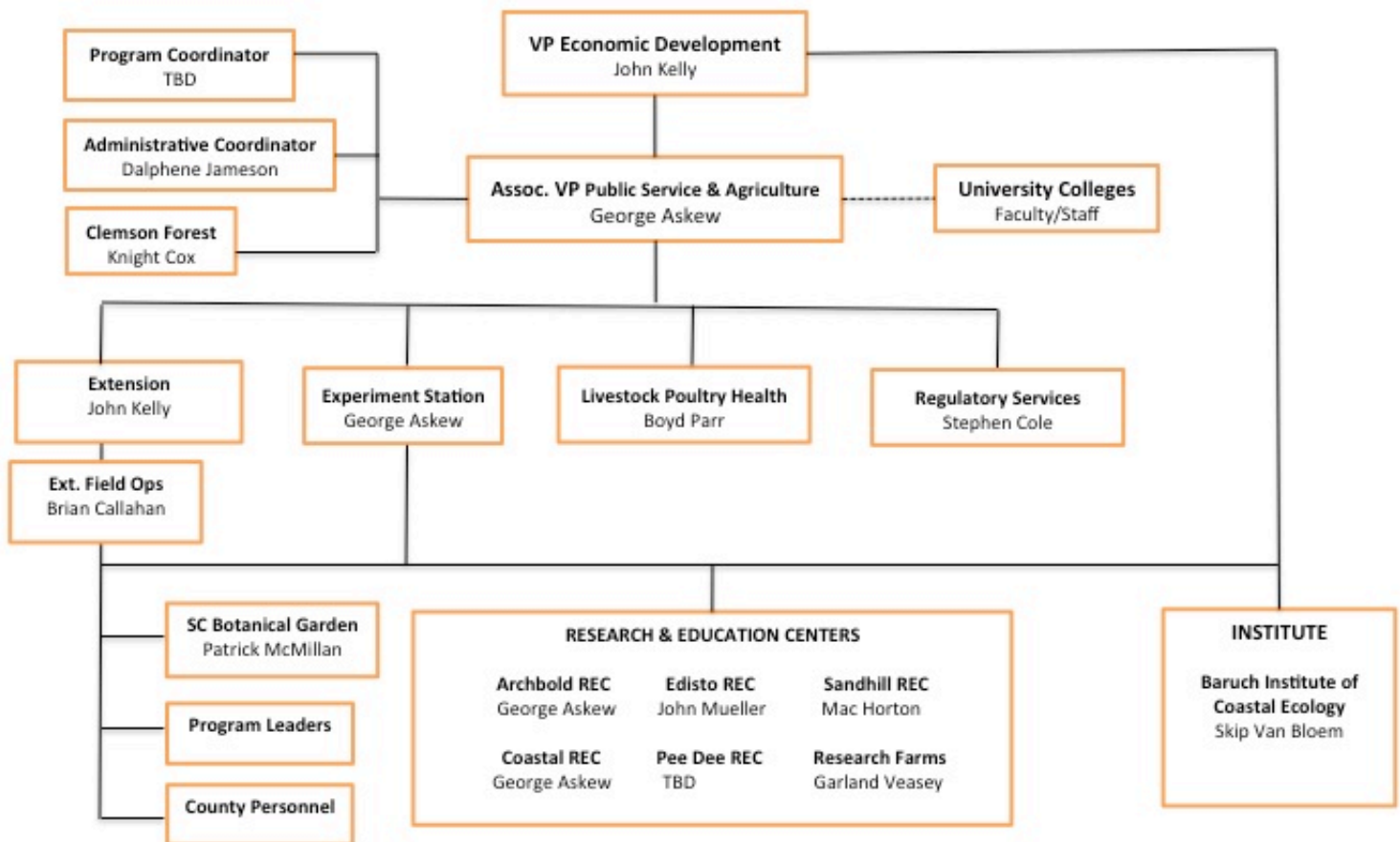Public Service Activities operates under an umbrella of processes designed to improve performance.

Employee Performance: Primary among these processes is the University's Employee Performance Management System (EPMS), which reviews the personal performance of classified employees. Similar to this process is the Faculty Activity System, which allows the faculty to report their plans for the coming academic period and post any accomplishments or measures of their activities. This information is used for promotion and tenure.

Unit Performance: Since 2009 the new WEAVEonline® university-wide assessment database has been used by individual units. WEAVE is: **W**rite expected outcomes/objectives, **E**stablish criteria for success, **A**ssess performance against criteria, **V**iew assessment results, and **E**ffect improvement through action.

Agency Performance: Information becomes a part of the strategic planning stage for PSA through assessment completion and review by unit heads and other administrators. PSA also uses the Clemson University Management Information System (CUMIS). This online system was developed for assessment reporting to the US Department of Agriculture. It collects and tracks data for the Clemson University Cooperative Extension Service, including number of programs conducted, number of participants completing programs, knowledge gain, and adoption of practice as a result of participation.

University Performance: Clemson University is assessed by multiple constituencies. The University is subject to accreditation reviews for both individual disciplines and the University as a whole. In addition, students, alumni and other external partners register their response to institutional performance through alumni surveys, student focus groups, and donations.

II-9 Organizational Structure

CLEMSON
PUBLIC SERVICE ACTIVITIES

VP Economic Development
John Kelly

Program Coordinator
TBD

Administrative Coordinator
Dalphene Jameson

Clemson Forest
Knight Cox

Assoc. VP Public Service & Agriculture
George Askew

University Colleges
Faculty/Staff

Extension
John Kelly

Experiment Station
George Askew

Livestock Poultry Health
Boyd Parr

Regulatory Services
Stephen Cole

Ext. Field Ops
Brian Callahan

SC Botanical Garden
Patrick McMillan

Program Leaders

County Personnel

RESEARCH & EDUCATION CENTERS

Archbold REC
George Askew

Edisto REC
John Mueller

Sandhill REC
Mac Horton

Coastal REC
George Askew

Pee Dee REC
TBD

Research Farms
Garland Veasey

INSTITUTE

Baruch Institute of Coastal Ecology
Skip Van Bloem

September 2, 2013

II-10 Expenditure/Appropriations Chart

	Accountability Report Appropriations/Expenditures Chart					
	Base Budget Expenditures and Appropriations					
	FY 11-112 Actual Expenditures		**FY 12-13 Actual Expenditures**		**FY 13-14 Appropriations Act**	
Major Budget	**Total Funds**	**General**	**Total Funds**	**General**	**Total Funds**	**General**
Categories		**Funds**		**Funds**		**Funds**
Personal Service	$ 33,655,961	$ 15,471,093	$ 33,480,894	$ 16,665,156	$ 38,498,804	$ 22,162,173
Other Operating	$ 18,576,632	$ 7,220,473	$ 20,245,504	$ 7,159,551	$ 18,216,321	$ 473,706
Special Items						
Permanent Improvements						
Case Services						
Distributions to Subdivisions						
Fringe Benefits	$ 10,645,725	$ 5,304,261	$ 10,516,787	$ 5,387,927	$ 13,783,436	$ 8,646,307
Non-recurring						
Total	$ 62,878,318	$ 27,995,827	$ 64,243,185	$ 29,212,634	$ 70,498,561	$ 31,282,186
		Other Expenditures				
		Sources of	**FY 10-11 Actual**	**FY 11-12 Actual**		
		Funds	**Expenditures**	**Expenditures**		
		Supplemental Bills	$ 250,000	$ 100,000		
		Capital Reserve Funds				
		Bonds				

II-11 Major Program Areas Chart

Program	Major Program Area	FY 11-12			FY 12-13			Key Cross
Number	Purpose	Budget Expenditures			Budget Expenditures			References for
and Title	(Brief)							Financial Results*
I.	Regulatory Services	State:	664,232.00		State:	696,929.00		
		Federal:	1,243,509.00		Federal:	933,483.00		
		Other:	3,135,840.00		Other:	4,079,249.00		
		Total:	5,043,581.00		Total:	5,709,661.00		
		% of Total Budget:		8%	**% of Total Budget:**		9%	
II.	Livestock-Poultry Health	State:	2,519,966.00		State:	2,654,045.00		
		Federal:	2,431,651.00		Federal:	2,129,598.00		
		Other:	39,732.00		Other:	.670,965.00		
		Total:	4,991,349.00		Total:	5,454,608.00		
		% of Total Budget:		8%	**% of Total Budget:**		8%	
III.	Agriculture Research	State:	12,o79,789.00		State:	12,559,898.00		
		Federal:	4,447,789.00		Federal:	4,273,881.00		
		Other:	5,146,669.00		Other:	3,679,649.00		
		Total:	21,674,247.00		Total:	20,513,428.00		
		% of Total Budget:		34%	**% of Total Budget:**		32%	
IV	Cooperative Extension	State:	12,731,840.00		State:	13,301,762.00		
		Federal:	7,058,815.00		Federal:	6,674,113.00		
		Other:	11,378,486.00		Other:	12,589,612.00		
		Total:	31,169,141.00		Total:	32,565,487.00		
		% of Total Budget:		50%	**% of Total Budget:**		51%	
Below: List any programs not included above and show the remainder of expenditures by source of funds.								
	Remainder of Expenditures:	State:			State:			
		Federal:			Federal:			
		Other:			Other:			
		Total:			Total:			
		% of Total Budget:			**% of Total Budget:**			

* Key Cross-References are a link to the Category 7 - Business Results. These References provide a Chart number that is included in the 7th Section of this document.

Section III – Elements of Malcolm Baldrige Award Criteria

III-1 Leadership

Clemson University is committed to achieving the goals first set forth by its founder, Thomas Green Clemson, who envisioned an institution dedicated to the people of South Carolina; a place dedicated to laying the foundation for the future of the state, driving change, and leading the way for generations.

The underlying philosophy of Public Service Activities has, and will always be, assisting the people of South Carolina, primarily with agricultural issues, but also with any issue under our focus areas. As Mr. Clemson requested, our leadership is built on our relationship with South Carolina citizens. Under the experienced leadership of Vice President John Kelly and Associate Vice President George Askew, our organization is focused to provide research and outreach in PSA's five areas of service.

1. Leader communication

In May 2011, Vice President John Kelly assigned daily management of PSA to Dr. George Askew, Associate Vice President, PSA. Dr. Askew established monthly meetings with PSA administrators and bi-annual planning/progress meetings with representatives of all of PSA leadership. These meetings share efficiencies, initiatives and results of projects. Dr. Askew also provides an opportunity for unit leaders to conduct strategic planning for the ensuing year's budget request.

PSA faculty and staff are encouraged to share their opinions and interests with the senior leadership through formal meetings held across the state at Experiment Stations, or through informal mechanisms. Senior leaders regularly travel around the state, participating in meetings with PSA stakeholders (see Section II-3), faculty and staff to elicit ideas for improving performance.

2. Leader focus on customers and other stakeholders

PSA leaders serve on multiple state and regional committees and organizations that are addressing the needs of the state's citizens. In addition, faculty and staff also participate across multiple arenas to gather information on current issue and concerns. For example, PSA leaders serve on multiple state and regional committees and organizations that address the needs of the state's citizens. In addition, faculty and staff participate in state and regional organizations to gather information on current issues and concerns.

3. Impact on the public

Through annual operational planning, PSA follows a simple strategic project management philosophy.

1. Consensus building and broad-based public relations activities precede the introduction of new programs in the state. Internally, initiatives must align with the stated goals of the unit and must have measurable outcomes.
2. Peer review of research is conducted internally, externally, and at the federal level. Research must meet stringent requirements when involving human and animal subjects or recombinant DNA.
3. Feedback loops are vital to PSA. Its advisory system, a close working relationship with appropriate leaders at the local, state, and federal level, provides feedback on the impact of programs.
4. Satisfaction surveys are conducted regularly and are detailed in Category 3-Customer Focus. These surveys along with more informal information-gathering techniques provide a continual source of feedback. This feedback is used to address the current and potential impact of PSA activities on the public.

4. Maintaining fiscal, legal, and regulatory accountability

As a part of Clemson University, PSA leadership relies on the various offices within the University and within PSA to ensure that all aspects of the organization are in compliance. The organization is well equipped to monitor and

maintain fiscal, legal, and regulatory requirements. The University's Internal Auditing Office undertakes annual audits of rotating areas within our organization. The findings are submitted to the Vice President of PSA for review and action. Finally, initiatives across the state are undertaken with appropriate approvals at the local level, such as city governments or school districts.

5. Key performance measures

PSA is unique in the breadth and depth of services offered in multiple locations across the state. An organization this large has many levels, with each level having very specific responsibilities, but also a level of independence in setting expectations. However, measures exist that are considered key to the overall "health" of the organization. Detailed performance measures are listed in Section I-3.

6. Performance review and employee feedback

An ongoing review of key performance criteria and employee feedback is used to improve leadership and management effectiveness.

Faculty and staff have always exercised their privilege to have an open dialogue with the administration. The most powerful use of the policy has been their collective strength through the Faculty and Staff Senate organizations. These organizations represent their respective area in all concerns ranging from working conditions to compensation. Through their elected representatives, these organizations report their concerns and comments to the President on a regular basis.

In 2009, both the faculty and staff were surveyed. PSA leadership, performance management, training, and other areas scored high among staff (see graph). The faculty survey was organized by colleges, but PSA faculty was not separately identified.

7. Succession planning and leadership development

- **Professional development** opportunities are promoted and advocated through announcements in newsletters, emails, and directors' meetings. Senior leadership strongly recommends including professional development goals in the annual employee evaluation process.
- **Mentoring** is also important and occurs through research partnerships between senior and junior faculty.
- A **succession plan** was developed in 2005 and updated in 2009 and 2011.

8. Performance improvement, accomplishment of strategic objectives and innovation

Senior leaders encourage employees to pursue lifelong learning and to achieve their potential through individual performance goals and evaluations, providing each employee with an opportunity to discuss his or her own goals and concerns.
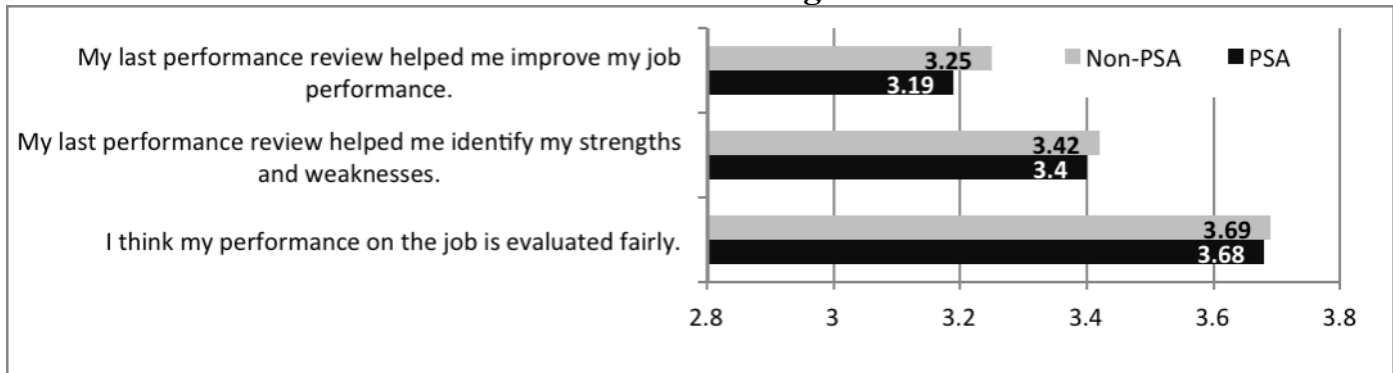
Innovation is essential to the growth and success of PSA, and many employees come to work with us because the environment facilitates innovative thought. New initiatives work their way up from individuals to their departments, to the PSA unit, and opportunities for researchers to earn internal innovation funds often lead to full proposals to external partner agencies.

Several publications highlighting achievements from the various faculty and staff from all areas within PSA are published on a regular basis. These publications go to great lengths to highlight the innovative, ground-breaking and unique contributions of our employees. Our websites, hosted by the department, unit or organization, identify accomplishments by our employees. A number of awards for various achievements are made each year. These examples and others too numerous to mention establish an environment for improved performance and recognition for that performance.
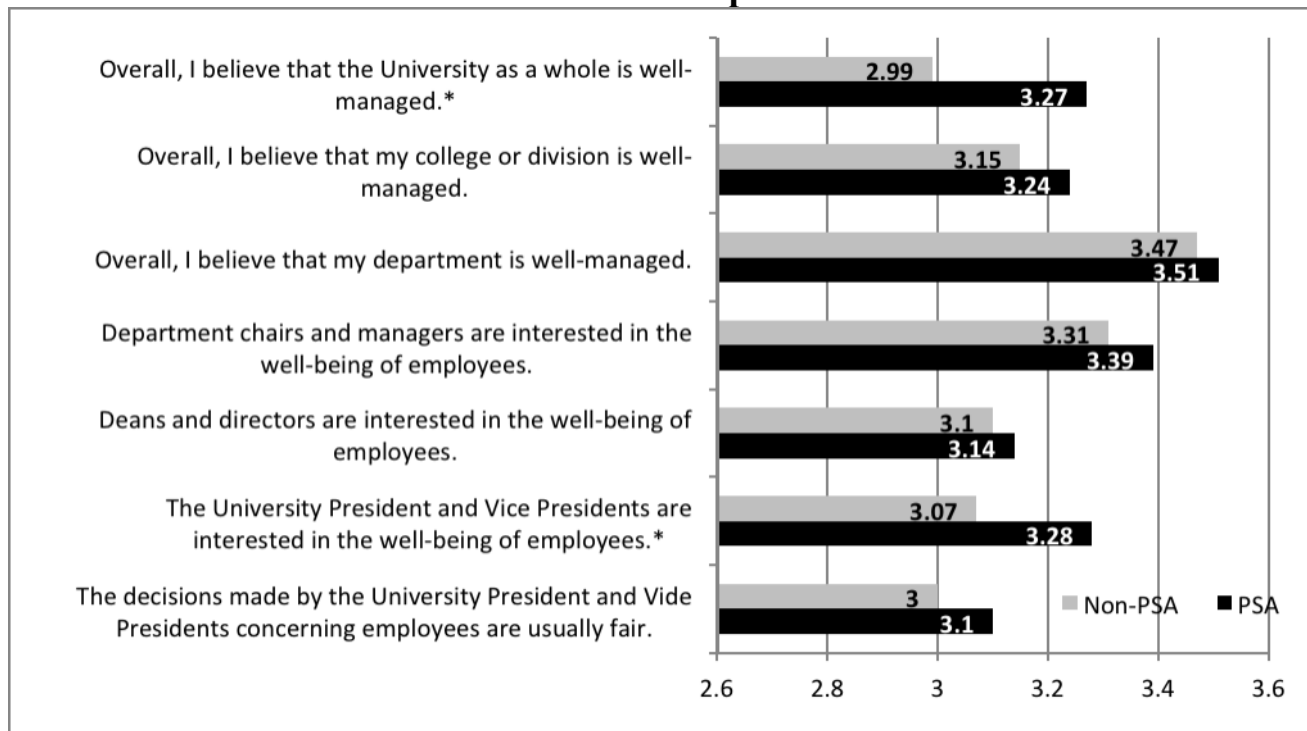
9. Organizational and workforce learning

Within PSA, there are multiple opportunities for professional and personal development that allow employees to learn about and participate in PSA initiatives. PSA personnel regularly volunteer with other units, for example, the SC Botanical Garden relies on volunteers to clear areas within the forest as well as to staff the semi-annual plant sales. Internal and external opportunities for professional development are encouraged, pending available funding. Senior leaders encourage this involvement by actively marketing these opportunities and enabling staff to take advantage of them with flex-time.

Performance Management

Leadership

PSA Personnel response scores significantly higher than other University personnel

10. Engaging, empowering, and motivating the workforce

The office of the Associate Vice President for PSA and his leadership staff use the following as only a few of the mechanisms for establishing a collaborative, empowered, and motivated workforce:

- **Website** – the PSA website staff regularly updates the PSA home page (www.clemson.edu/public/) with stories that highlight the activities of personnel from across the state.

- *Impacts* – the PSA newsletter is published twice per year, both hard copy and electronically, to an audience of 20,000 with information from the Administration as well as informative articles that highlight accomplishments in each of PSA's units (www.clemson.edu/impacts/).
- **Radio** – The "Your Day" program has aired on public radio for 10 years and broadcasts interviews with local, state, and national experts on a variety of issues affecting South Carolinians (http://yourday.clemson.edu/).
- **PSA Conference** – The Associate Vice President's office hosts an annual conference, when funds allow, that informs PSA faculty and staff about important issues, as well as concerns that employees have voiced. This conference is scheduled early 2013.

When funds are available, employees may be awarded a salary increase based on merit without consideration of any cost-of-living increase that is mandatory for classified employees. Such requests for merit increases must include written justification and be approved by the Associate Vice President, the Vice President and the President.

11. Supporting and strengthening communities

PSA's mission is to assist South Carolinians in making informed decisions that will improve their lives, their communities, and their state. PSA accomplishes this by developing new knowledge through research and then applying that knowledge in communities where it has a positive impact.

In addition, community support is also demonstrated through participation on, or interaction with, local, regional, and state boards. A limited set of examples includes:

State Enterprise Architecture Oversight Committee	SC Department of Education Task Force on Revenue and Funding
State Extension Advisory Committee	
Education and Economic Development Act	United Way of the Midlands Early Childhood Council
SC Association of Counties	Southern Association of Agricultural Scientists
SC Farm Bureau Federation	SC Forestry Association
Shoreline Policies Advisory Committee	SC Biotechnology Alliance
Ocean Planning Task Force	SC Commodity Boards (crops & livestock)
	Palmetto Partners

As mentioned earlier, senior leaders value the service contributions made by their faculty and staff because it is considered essential to understanding our primary customer – the South Carolina citizen.

III-2 Strategic Planning

Strategic planning within PSA is an ongoing process that includes all levels of the organization. It starts at the top with PSA leadership and is communicated throughout the organization via a number of processes.

1. Strategic planning process

PSA is committed to taking a leadership role in addressing challenges and realizing opportunities in South Carolina. Points in the process include:

- **Establishment** of Clemson University's goals and priorities for the year through senior leadership meetings
- **Review** of University goals and priorities with PSA leadership to determine where the strengths of PSA, in alignment with its mission, can best set public service goals
- **Development** of unit and institute objectives into measurable statements
- **Input** from all PSA employees and consideration of previous stakeholder input when composing the plan that administration uses to chart the course
- **Feedback** is provided by employees to their directors, and to the PSA leadership. If appropriate, the plan is refined.

2. Addressing strategic challenges

Our strategic challenge is to maximize discovery and delivery of new knowledge through science-based relevant research leading to discoveries specific to South Carolina's needs that are delivered through the extension programs in our focus areas: advance the competitiveness of the agriculture and forestry industry, enhance the economic potential of rural communities, safeguard the food supply, preserve natural resources, and prepare young people to become productive citizens.

This year's strategy is outlined in Section I-3.

3. Developing and tracking action plans

WEAVEonline® is a Web-based assessment management system that PSA participates in and which supports the SACS Standards for Accreditation. WEAVEonline® captures standard program-level assessment areas: mission, outcome/objectives, measures/findings, action plan, and analysis. It has expanded capabilities in linking to larger institutional perspectives within each program's outcomes/objectives. This system allows every department and unit at Clemson the opportunity to link to: general education competencies, professional accreditation standards, institutional priorities (goals), and institutional and college strategic plans.

Unit information is submitted to the Clemson University Office of Assessment. Each unit must complete an initial plan and a self-assessment of their efforts each year. At the end of a reporting period, each unit must report why they did or did not meet those objectives and explain what improvements they will make based on the results of that knowledge.

Information becomes a part of the strategic planning stage for PSA through assessment completion and review by unit heads and other administrators. PSA also uses the Clemson University Management Information System (CUMIS). This online system was developed for assessment reporting to the US Department of Agriculture. It collects and tracks data for the Clemson University Cooperative Extension Service, including number of programs conducted, number of participants completing programs, knowledge gain, and adoption of practice as a result of participation.

Allocation of resources for the subsequent fiscal years can be based on whether or not the goals were accomplished, or if satisfactory progress has been made to justify continuation. The evaluation process seeks to ensure that new initiatives receive appropriate funding. All appropriate sources of revenue, state, federal, and sponsored activities are used to accomplish the plan.

4. Communication and deployment

As noted in III-2.1 above, the strategic planning process is an inclusive process, with experienced senior leadership, in conjunction with input from employees and stakeholders, determining PSA's goals. Communication to PSA faculty and staff occurs through multiple opportunities, both formal and informal.

- **PSA Administrators Meetings** – Section III-1.1 details the periodicity and function of these meetings.
- **Presentations** – To increase efficiency, presentations are made across the PSA locations via video conference; additional presentations are made in person as schedules and travel funds permit.
- **Printed media** – *Impacts* newsletter regularly reports on PSA efforts to meet annual objectives.
- **Websites** – Efforts have increased to make more information available on PSA websites, with a current initiative underway to standardize the content management of the sites.

5. Measuring progress on action plans

This process begins with individuals accounting for their progress on their own employment goals. These individual goals have been related to unit and agency goals. If an identified goal is not fully complete, an evaluation of progress towards completion is made on each objective.

PSA administrators then report to the Associate Vice President on the achievement of unit-specific assignments and, as with individuals, evaluation of progress is made on each objective.

Finally, the Associate Vice President reports to the Vice President Economic Development's office on PSA's achievements. The Vice President reports to the President of Clemson University.

6. Evaluating and improving the strategic planning process

The Associate Vice President's office and the PSA Accountability Office solicit feedback on the process throughout the fiscal year.

7. Strategic plan availability

PSA recognizes the importance that the Internet plays in today's society. PSA does not currently place the strategic plan on its website, but efforts to inform the public can be found in PSA's website www.clemson.edu/public/ and in *Impacts* newsletter.

Strategic Planning Chart

Please note that the Strategic Challenges identified in Section III-5 are nested in the Initiatives below.

Program Number and Title	Supported Agency Strategic Planning Goal/Objective	Related FY 10-11 and beyond Key Agency Action Plan/Initiative and Timeline	Key Cross References for Performance Measures*
I. Agricultural Research (Experiment Station)	Advance the competitiveness of the agriculture and forestry industry Enhance the economic potential of rural communities Safeguard the food supply Preserve natural resources Prepare young people to become productive citizens.	Timeline: note the Experiment Station timeline is based on a five year rolling NIFA (USDA) annually updated Plan of Work that continues from year to year. 1. **Sustainable Animal Production Systems –** Conduct research to improve the health & productivity of livestock & poultry in SC. Increase the number of technical papers & presentations. Focus on transferring technology in emerging areas such as forage-fed beef. 2. **Sustainable Horticultural Crop Systems** – Improve the productivity & profitability in the horticultural crops, fruits, vegetables, turfgrass & ornamentals. Increase the number of technical papers & presentations. Focus on transferring technology in emerging areas such as pest management & genetically modified crops. 3. **Sustainable Agronomic Crop Systems** – Improve the productivity &profitability in all the major agronomic crops, soybeans, grains, & cotton. Increase the number of technical papers & presentations. Focus on transferring technology in emerging areas such as peanut production, pest management, & genetically modified crops. 4. **Agricultural Biotechnology** – Utilize molecular technology to address issues of practical importance to agriculture. Increase the number of technical papers & presentations. Focus on transferring technology in emerging areas such as animal & plant production systems. 5. **Community, Leadership, and Economic Development –** Conduct research to enhance economic opportunities & improve the quality of life for South Carolinians. Assess local labor markets and quantify spatial dynamics. Evaluate opportunities & threats to rural markets. 6. **Forestry and Natural Resources –** Develop models to understand the hydrology of SC's coastal plain to improve development. Evaluate forest management practices to decrease fuel burns. Evaluate new methods to manage timber for improved wildlife management. Research soil properties & their	7.0, 7.1

		relationship to urban land-use properties on lawns & golf courses. 7. **Food Safety, Nutrition and Human Health** -- Develop nanotechnology applications for food safety & quality; seek new methods to control harmful microbes in foods; emphasize effects of plant-based foods on health and nutrition. Increase collaboration with MUSC to evaluate health benefits of plants. Increase the number of technical papers & presentations. 8. **Water Quality and Quantity -** Conduct research programs focused on developing strategies for economically viable land-use to coexist with good water quality, & identifying wetland and watershed management practices to improve water quality & wetland and aquatic wildlife habitat. Increase the number of technical papers & presentations.	
II Cooperative Extension	Advance the competitiveness of the agriculture and forestry industry Enhance the economic potential of rural communities Safeguard the food supply Preserve natural resources Prepare young people to become productive citizens.	1. **Sustainable Management of Forest Resources and Forest Systems -** At least 80% of the foresters & landowners will report a gain in knowledge as a result of participating in sustainable forest & natural resource programs by the end of the fiscal year. 2. **Sustainable Horticultural Crop Production –** At least 80% of the persons completing sustainable horticultural programs will report a gain in knowledge & skills by the end of the fiscal year. 3. **Sustainable Agronomic Crop Production –** At least 80% of the persons completing sustainable agronomic programs will report a gain in knowledge & skills by the end of the fiscal year. 4. **Livestock and Forages –** At least 80% of the persons completing livestock & forages programs will report a gain in knowledge and skills by the end of the fiscal year. 5. **4-H, Youth Development and Families –** At least 80% of the youth ages 9-19 will demonstrate skills learned as a result of participating in 4-H projects by the end of the fiscal year. 6. **Food Safety and Nutrition –** At least 70% of the people completing food safety & nutrition programs will report a gain in knowledge by the end of the fiscal year. 7. **Economic and Community Development –** At least 80% of the participants who complete Community, Leadership & Economic Development (CLED) programs will report knowledge gained by the end of the fiscal year. 8. **Water Resources -** At least 80% of the persons completing water resources programs will report a gain in knowledge and skills by the end of the fiscal year. 9. **Volunteer Development -** At least 500 volunteers will be trained & will conduct programs, serve on boards, committees, county organizations, & in cooperative relationships to establish, revitalize, improve, and/or expand the scope of youth & families programming.	7.0, 7.2

III. Livestock-Poultry Health	Advance the competitiveness of the agriculture and forestry industry Enhance the economic potential of rural communities Safeguard the food supply Preserve natural resources	1. **Animal Health Programs –** Protect animal & public health through control of endemic, foreign, & emerging diseases; enforce state and federal animal health laws & regulations by monitoring interstate movement of animals & inspecting livestock auction markets; expand traceability system designed to enhance animal disease control, surveillance, & eradication programs. 2. **Meat/Poultry Inspection Program** - Regulate state meat/poultry plants; protect the health of consumers by providing a comprehensive inspection service to ensure that meat & poultry products are safe, wholesome & accurately labeled. 3. **Veterinary Laboratory -** Provide accurate & timely veterinary diagnostic & surveillance testing for early detection of disease, thus improving the response activities & mitigating economic losses; maintain AAVLD accreditation; meet NVSL accreditation standards & criteria for technicians to be proficiency certified.	7.0, 7.3
IV. Regulatory Services	Advance the competitiveness of the agriculture & forestry industry Enhance the economic potential of rural communities Preserve natural resources	Timeline: note Regulatory Services timeline is based on mandates that continue from year to year. 1. **Regulation of Structural and Ornamental Pesticide Applications** – Ensure the safe & legal use of pesticides by the structural & turf/ornamental pest control industries. 2. **Pesticide Regulation** - Monitor the use of pesticides in South Carolina to ensure their safe & effective use & prevent harm to humans, plants, animals, & the environment. 3. **Fertilizer Regulation** – Ensure the quality of fertilizer, lime, & soil amendments distributed to end users in SC by verifying that they meet label guarantees & are free of contaminants. 4. **Plant Pest Regulation** - Prevent & control introduced plant pests/invasive species & pests of honeybees & certify freedom from plant pests for the nursery, greenhouse, & transplant industries. 5. **Plant Diagnostics** –Analyze samples for plant pests & diseases & provide results & recommendations to clients. 6. **Seed and Organic Certification** – Apply official quality & purity standards in the certification of eligible seeds & plants produced in SC Provide USDA –NOP accredited certification services for organic producers, processors, & handlers who seek certification through our agency. 7. **Emergency Preparedness and Response** – Collaborate with other state agencies to develop alert systems & response plans for exotic plant pests & diseases. Conduct training exercises for state & local responders to ensure readiness. Conduct targeted surveys for potential threats to plant agriculture.	7.0, 7.4

III-3 Customer Focus

1. Key customers and stakeholders

More than 219,000 personal contacts were made by PSA units in 2012-13. This level of service reinforces our core belief that our customers are the citizens – young and old, rich and poor, rural and urban – of South Carolina. According to program participation, assessment efforts, Internet traffic, and personal contacts, the key requirements are identified across our units.

- **Timeliness** – PSA customers expect assistance quickly, whether that response is a phone call, email, website, radio, training workshop or demonstration site.
- **Accuracy** – PSA must strive to provide only the most current and accurate information, keeping citizens in touch with the latest research, products, or safety requirements.
- **Practicality** – Customers expect information and services from PSA to be relevant to their needs and interests as South Carolinians.

2. Keeping current with changing needs

PSA was one of the first agencies to utilize the strength of the Internet for communicating with constituent groups. In addition, current efforts have utilized distance technologies such as video conferencing to make programs more accessible across the state. Agents, faculty members, and staff are constantly working to ensure communication remains open in all the traditional methods and new technologies.

3. Customer access mechanisms

- **Research and Education Centers and Extension Service County Offices** – PSA's physical presence across South Carolina provides important access points for many of our customers. All locations are staffed with professionals who are trained to utilize PSA resources to make sure accurate information is provided.
- **Public Boards and Meetings** – As stated earlier, PSA professionals serve the state through appropriate boards, commissions, task forces, grass-roots level county advisory councils, and research groups. This interaction provides a valuable access mechanism through which people can voice praise or concern about PSA operations.
- **Websites** – PSA maintains numerous websites to provide information 24 hours per day. Each website has contact information for additional details.

4. Measuring satisfaction

PSA has implemented assessment and accountability processes to evaluate the quality of services provided in all counties of the state. A customer satisfaction survey collects data from clients to determine ways to improve program quality, information delivery, and more importantly, customer service. These evaluations serve as an important part of our accountability efforts.

For example, the Cooperative Extension Service uses five indicators (benchmarks) to assess the quality and satisfaction of services provided: 1) the extent to which programs were up-to-date and relevant, 2) the extent to which knowledge was gained, 3) the extent to which recipients had the opportunity to use the information to solve a problem or address a concern, 4) the extent to which recipients have shared the information with others, and 5) the extent to which recipients are satisfied with the services provided.

Almost 88% said that the information presented was up-to-date, accurate, and relevant to their situation; almost 84% reported that they gained knowledge; over 64% had shared information with others, and over 85% indicated that they were satisfied with services provided by the Extension Service.

5. Building positive relationships

Daily interaction, made possible by the location of PSA resources and personnel in every county, coupled with the delivery of information that is accurate, timely, and usable are the keys to positive relationships with customers and stakeholders. Industries, large business operations, and local governments require different levels of assistance than citizens who may have very specific individual needs.

For PSA, the top priority for positive relationships occurs through communication and collaboration across the 46 South Carolina counties.

III-4 Measurement, Analysis, and Knowledge Management

1. Determining measures

- **Financial performance** is ensured by rigorous University and state accounting procedures.
- **Operational performance** is ensured through internal accountability measures, feedback from constituent groups, and state reporting requirements.
- **Unit performance** is ensured through assessment of initiatives that fit within PSA goal areas as well the University goals/emphasis areas. These units have established processes to determine their success in addressing the needs of their customers/stakeholders.
- **Personnel performance** is ensured through the state's Employee Performance Management System process as well as internal opportunities for professional development, occupational health and safety, and adherence to state hiring practices.

2. Using data/information in decision-making

The PSA Office of Accountability works in coordination with the Associate Vice President's office, as well as with the unit directors, to outline data requirements:

- Data is collected through PSA's network of information systems (survey instruments, advisory board sessions, focus groups, etc.).
- PSA's Accountability Office synthesizes the information, aligns results with strategic goals, and submits reports that are distributed to the Directors and the PSA leadership.
- Financial reports are merged with the assessment data upon request by the Chief Financial Officer for the directors and the PSA leadership team.

3. Key measures

Key measures have been identified in Section I-3 and on the Strategic Planning Chart. The PSA leadership team regularly reviews objectives and initiatives throughout the year as projects are discussed. Adaptations are made mid-year if appropriate.

4. Comparative data use

PSA maintains numerous information systems related to the operational aspects noted in III.4.1 above. Through these systems, data may be obtained to compare performance across multiple years, departments, and individuals. As much as appropriate, external comparisons from other public service agencies at land-grant institutions are also used.

5. Data integrity, timeliness, accuracy, security and availability

To the extent possible, the authenticated data source is used for all PSA information; for example, financial reports are pulled from audited financial data not from self-reported information. In addition, efforts to gather data from multiple sources provide valuable checks on achievement of objectives.

Those responsible for collecting and reporting data communicate with personnel to remind them to enter data in a timely manner. In order to ensure data is secure, both the University and PSA systems are protected by requiring passwords and using firewalls.

6. Translating performance review findings into continuous improvement priorities

PSA units submit via WEAVE™ annual plans containing objectives for the reporting period. At the end of the reporting period, the plans are compared to the results. The units submit the findings and action plans to meet any unmet measures using the WEAVE™ database.

7. Organizational knowledge / best practices

Policy and procedure manuals containing best practices exist to ensure employees are aware of federal and state laws and regulations pertaining to a given process, as well as of Clemson University's specific policies and procedures.

In addition, PSA faculty and staff participate in conferences, meetings, and technical presentations where they learn new practices and determine how appropriate changes can be integrated in PSA to improve efficiency and effectiveness.

III-5 Workforce Focus

PSA maintains an Office of Staff Development to ensure that PSA staff members are trained to meet the needs of their profession and achieve their potential. PSA's Business Services works with Clemson University's Office of Human Resources for all employee policies and procedures. Commitment to our employees is best exemplified in the Human Resources Philosophy:

Clemson University Human Resources Philosophy

Clemson University's mission, as an agency of the State of South Carolina, is to serve the State and its people through teaching, research, and public service. Clemson is committed to the following fundamental beliefs:

1. To continually seek the highest degree of excellence possible. Employees, individually and collectively, must be committed to the goal of excellence in the performance of their duties.
2. To treat every employee fairly, ensuring that respect for the individual dignity and worth of each is maintained regardless of position and that no employee or applicant for employment is discriminated against because of race, sex, national origin, handicap or veteran status.
3. To provide the kind of open and honest leadership that fosters faith and confidence in management, expecting all those who supervise the work of others to treat those under their direction as they would want to be treated.
4. To provide free and open channels of communication for employees at all levels and to handle complaints of employees promptly and fairly.
5. To provide each employee with worthwhile and honest work with competitive wages and benefits and safe working conditions which are as convenient and as pleasant as possible.
6. To provide every possible opportunity for self-improvement and advancement at the University.

These six statements of basic personnel philosophy are indivisible. Together they express the basic human resource management philosophy of Clemson University.

1. Organization and measurement of work

PSA senior leadership recognizes the strength that comes with experienced and well-prepared workforce. Professional development is a priority, whether in a small on-campus class to learn a new software package or through internal and external professional development opportunities. Support is offered individually, with the development of teamwork and innovation within and across units.

2. Evaluating human resource related processes

The evaluation of human resource related processes is a part of the Employee Performance Management System process (EPMS) that takes place each year. Our employees are required to establish a planning stage in concert with the supervisor. An interview takes place to discuss the actual performance and open dialogue is encouraged as part of that interview. Objectives for the new assessment period are discussed.

3. Recruiting, hiring, placing, and retaining employees

PSA faces the same opportunities and challenges as all state agencies in tough economic times – balancing potential budget cuts with the need to perform required services. Recruitment and hiring follow the specified state guidelines for advertising and classification. Placement within PSA is completed as part of the classification process to ensure qualified specialists are located in their local service areas, understanding that the mission of PSA may require many professionals to travel across South Carolina.

Retention of exceptional employees is of paramount importance to PSA leadership, who recognize the time, effort, and funds required to bring in new personnel. Efforts are made with staff to offer non-monetary benefits that interest employees, such as flex-time, professional development opportunities, mentoring, and continuing education.

4. Assessing workforce capability and capacity needs

The Office of Human Resources conducts a needs assessment survey for each University unit to ascertain training needs. From the information gathered, sessions are scheduled specific to unit needs. OSHA training is done in accordance with regulations. New employee orientation is offered to each new staff member online and using synchronous distance technology, as well as through meetings with HR personnel.

New Extension employees are expected to complete a web-based New Employee Orientation. Mentors are assigned to new employees to guide them through their first year work experience. New employees are trained against a professional core competencies model. Training needs assessments are administered for Extension employees. Employees are encouraged to participate in self-paced learning through Web-based educational modules and through e-Xtension. Additional training for all employees is offered through Adobe Connect.

In addition, the 2009 staff survey revealed that PSA staff view themselves as recipients of training that prepares them for their work.

Training
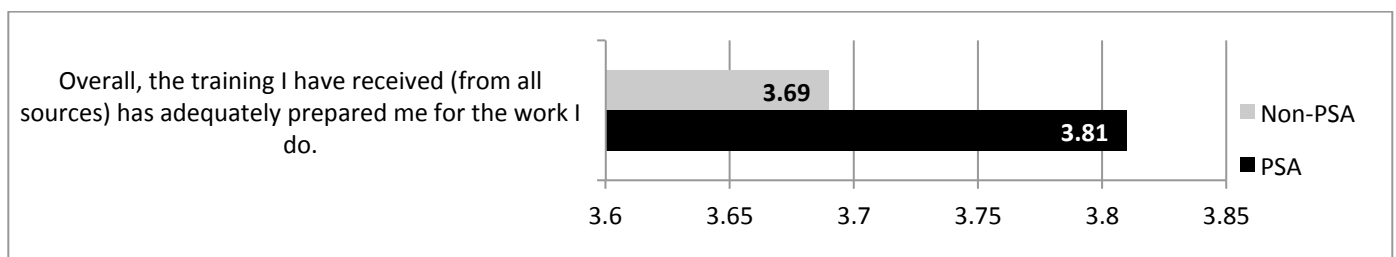
5. Supporting high performance

Communication during the **planning phase** of the process sets expectations, and employees provide input into formulating annual objectives.

The **evaluation phase** includes not only a category for meeting the expectations, but also one for exceeding and one for substantially exceeding. The possibility of achieving a higher rating for work that is accomplished encourages performing at a higher level.

Performance pay is also tied to the evaluation process and surveys have shown it to be a strong incentive for higher-level performance, although this incentive has not been funded recently in state appropriations.

6. Development and learning system for leaders

PSA provides in-service training programs for all employees, divided into three categories:

- **Subject Matter** - Extension specialists and initiative teams develop subject matter trainings each year for agents to keep them up-to-date in the various program areas. Required sessions include Ethics and Regulatory Compliance.
- **Professional Development** (which includes orientation) - A variety of professional development trainings are offered each year on topics such as grant writing, diversity, developing partnerships, developing survey instruments, etc. An orientation program is in place which includes an introduction to the Cooperative Extension Service and additional trainings in civil rights and program development.
- **Technology** – Training is offered to cover the use of many computer programs. In addition, the professional associations related to PSA offer trainings and updates at both the state and national levels. Training is available and encouraged through "Tech Talks," a webinar series delivered via Adobe Connect directly to the desktop, offered by Clemson Computing and Information Technology.

7. Identifying key developmental training needs

The University Office of Assessment, in coordination with the Office of Human Resources, regularly surveys PSA and University employees to elicit ideas for training. There is a regular set of training programs (www.clemson.edu/faculty-staff/training.html) that are offered both in class settings and online. Classes that are in higher demand are offered more often to meet employee needs.

8. Encouraging on the job use of new knowledge and skills

Unit directors are strongly encouraged to use the planning stage of the EPMS process to tie new skills to new objectives, following through to evaluate achievement of objectives. In addition, many directors require that new skill application be a requirement for travel; employees may be asked what they will learn before being allowed to travel.

9. Employee training linkage to action plans

The training offered through the University focuses on areas that can assist employees in improving their technology skills, important aspects of most goals areas. In addition, because employees are involved in their own evaluation process and in setting objectives, their training and knowledge are inextricably tied to PSA's plans and outcomes.

10. Evaluating effectiveness of workforce and leader training

The University Office of Assessment, in coordination with the Office of Human Resources, surveys PSA and University employees to elicit ideas for training. In addition, each training session includes an assessment of the training including the ability of the instructor, the ability to use the knowledge learned, and interest in additional training. The Extension Staff Development Office regularly administers an assessment to determine training needs.

11. Motivating the workforce

PSA has a number of incentive and awards programs to support employees within the system. An innovative Distinguished Agent position was created which is reserved for those agents who perform at the highest level. Each professional organization that is tied to Extension - such as the County Agricultural Agents, Family and Consumer Sciences Agents, 4-H Agents, Extension Secretaries, and Epsilon Sigma Phi, have awards programs to promote excellence in programming efforts. Three Superior Performance Awards are sponsored for agents and faculty as is an Outstanding Service Award for classified staff. In addition, the Clemson University Alumni Association sponsors the Distinguished Service Award each year for excellence in Public Service.

The prestigious Godley-Snell Award for Excellence in Agricultural Research is given each year to an individual scientist or a team of scientists whose research accomplishments benefit the citizens of South Carolina, the region, or the nation. This work exemplifies efforts to enhance the public trust in science and to increase the public's knowledge of the benefits of agricultural research.

12. Assessment of workforce well-being, satisfaction, and motivation

The Office of Human Resources conducts a needs assessment survey for each University unit to ascertain areas of concern for employees. Satisfaction is assessed within departments, and employees are able to move within PSA if appropriate positions come available.

Grievances are evaluated by the Faculty and Staff Ombudsmen on an individual basis and solutions are sought in conjunction with the appropriate employees and supervisors, Human Resources, General Counsel, and unit directors.

13. Managing career progression and succession planning

- **Professional development** opportunities are promoted and advocated through announcements in newsletters, emails, and directors' meetings. Senior leadership strongly recommends including professional development goals in the annual employee evaluation process.
- **Mentoring** is also important and occurs through research partnerships between senior and junior faculty.

14. Maintaining a safe and healthy work environment

PSA complies with all state and federal work environment regulations as overseen by the Clemson University Office of Environmental Health and Safety.

The Office of Human Resources (OHR) ensures compliance with the Drug Free Work Force Act by annual distribution and enforcement of the Employee Drug and Alcohol policy. OHR also ensures compliance with the Department of Transportation regulations governing training and drug testing of employees who are required to have a commercial driver's license. An Employee Assistance Program provides confidential assistance/referral for employees experiencing personal difficulties.

The University and PSA focus on encouraging safe work environment/habits. Ergonomics specialists on staff will provide recommendations for improving workstations and the University Wellness Center provides health programs and services at little or no cost to employees. These programs include, in part, recommendations for weight loss, improving diet, and lifestyle changes. Individual PSA units have a variety of complementary approaches in the safety area to include training in pest management for employees, safety compliance officers who stress safety in laboratory areas, and regular inspections of facilities and equipment.

III-6 Process Management

1. Core competencies

The design of program initiatives is built around a four-step process:

- **Needs assessment** – based on customer comments, emerging research, University goals, and comparable agencies
- **Relevance** – to PSA mission, relationship to past successful initiatives
- **Capacity** – personnel to fulfill required objectives, and availability of necessary facilities
- **Impact** – targeted towards the customer base and systematically updated

The design of the delivery systems is constantly affected by increased demand for services, new types of services, and new means of service delivery. PSA responds to changing customer needs through delivery of services via the Internet, satellite broadcasts, video conferencing, and public television and radio.

In Extension the core competencies are: Knowledge of the Organization, Program Development, Communications, Interpersonal/Human Relationship Effectiveness, Office/Organizational Effectiveness, and Technical/Subject Matter Knowledge. Employees are trained against these core competencies.

2. Key work processes

Feedback from program participants, annual evaluations of objectives and goals, and communication with constituent groups all are coordinated to determine the most "valued" services. PSA's core competencies are the foundation on which goals and objectives are created and end of the year assessment ensures improvements are made in subsequent years.

3. Incorporating efficiency and effectiveness measures into processes

As noted in III.6.1 the processes that build PSA initiatives take into consideration multiple factors. It is the goal of PSA faculty and staff to seek new knowledge, to improve knowledge that already exists, and to use this knowledge to improve the lives of South Carolinians. Often, we find that it is new technology that increases efficiency and effectiveness, and our evaluations seek to determine the outcomes.

4. Ensuring daily operation meets key performance requirements

Communication is a key support process in the design, production, and delivery of products to customers. In addition, teamwork is an integral aspect of many PSA projects so that evaluation of progress on performance requirements is integrated from the bottom up to the Associate Vice President's office. Occurring informally through intra-unit meetings and presentations, colleagues collaborate and contribute to each other's success, thereby strengthening PSA programs and the overall performance of the agency.

5. Evaluation and improvement of processes

Evaluations have proven to be a reliable process to gauge how well we are meeting the needs of our customers. Our Extension Service uses evaluations for each of their workshops to determine if the training met the anticipated need of the participants. Periodic mail surveys are sent to Extension Service contacts to evaluate our overall service and to solicit suggestions for new and improved services.

Our contacts with industry and other government agencies allow us to use their feedback to monitor our usefulness to meet their needs. Our research is best judged by the number of grants awarded and the quality can best be measured by the number of publications our faculty produce, as well as the number of patents and licenses awarded. The outreach of this knowledge to our clients is accomplished by the Cooperative Extension Service, present in every county. The rapid identification, mitigation, prevention, and control of key agriculture pests; the quality of agrichemicals; the compliance with pesticide and plant industry laws and regulations, and animal disease-free status indicate the effectiveness of our regulatory programs.

6. Key support processes

As has been stated previously, communication and feedback from our staff, clients, and partners has been the key to achieve better performance. State, regional, and national meetings are frequently initiated or attended by key individuals in our organization to ensure that efforts are coordinated to minimize duplication while encouraging collaboration.

7. Determining resources needed to meet obligations

During the annual planning process, unit directors collaborate with their staff members to create and determine which initiatives will be prioritized for the coming year. Most units require that initiatives be proposed in conjunction with funding amounts and sources. As much as possible, external sources of funds are sought for research and development projects. Finally, PSA is fortunate to have a strong base of volunteers who offer their time for multiple projects across the state, thus saving the state thousands of dollars each year.
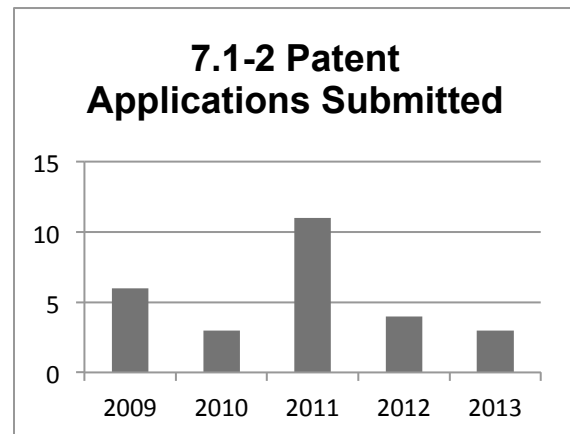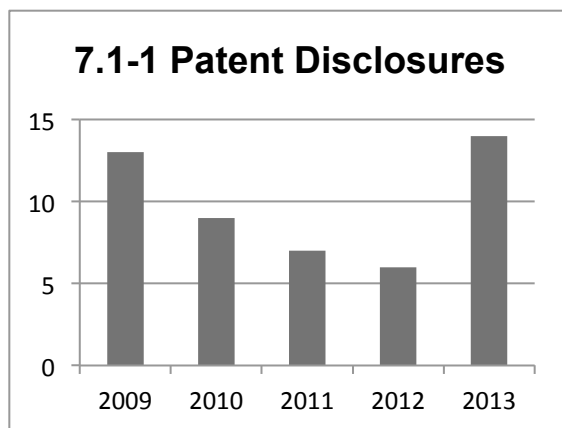
III-7 Business Results

7.0 PSA Faculty Productivity Measures

As a leading land-grant public research institution, Clemson University highlights its federal grant activities. Sponsored Research Awards is a measure of faculty competitive grant funding activity. The data is cyclical in nature due to long-term funding periods, usually two to five years in length, limited levels of principal investigators, and time constraints. This data is used in evaluating the productivity of faculty as well as determining PSA's contribution to Clemson University's sponsored research funding goals. The annual sponsored research awarded dollars (in millions) and the number of research grant proposals submitted by PSA faculty are shown in the two graphs that follow.

7.0-1 Sponsored Research Awards (In $ Millions)
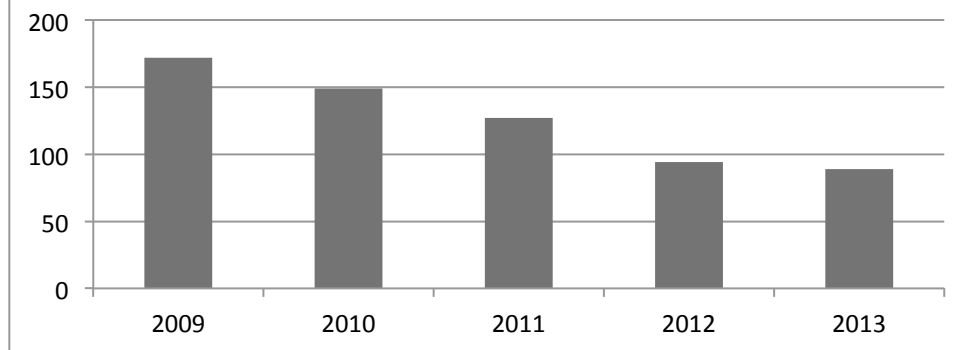
7.0-2 Annual Proposal Submissions
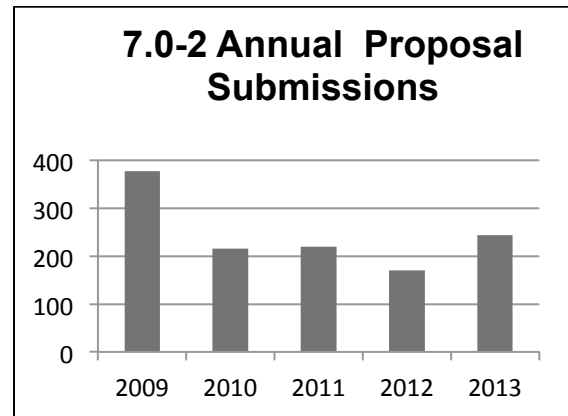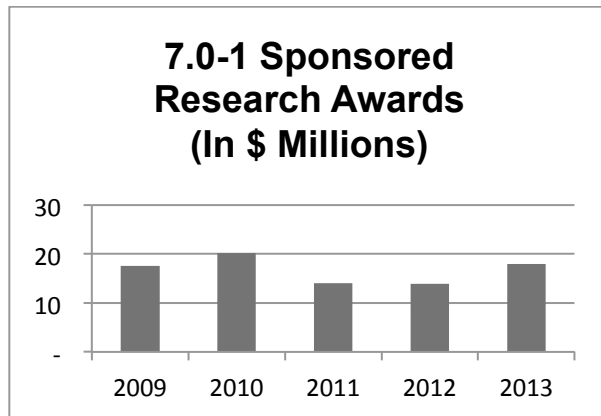
7.1 Agricultural Research (Experiment Station)

Patents and technical contributions demonstrate that the PSA faculty contributes to the body of knowledge in their areas of expertise. Patents indicate the merit and originality of discoveries submitted. Patents also have the potential to generate new economic activity through licensing and marketing. Disclosures are the first step in the discovery process leading to a patent. Data over time indicate that faculty is successful in inventing products as shown in the following graphs.

7.1-1 Patent Disclosures

7.1-2 Patent Applications Submitted

7.1-3 Technical Contributions by Experiment Station Faculty

A bar chart showing technical contributions for years 2009 through 2013, with values approximately 172, 150, 127, 95, and 90 respectively. The vertical axis ranges from 0 to 200.
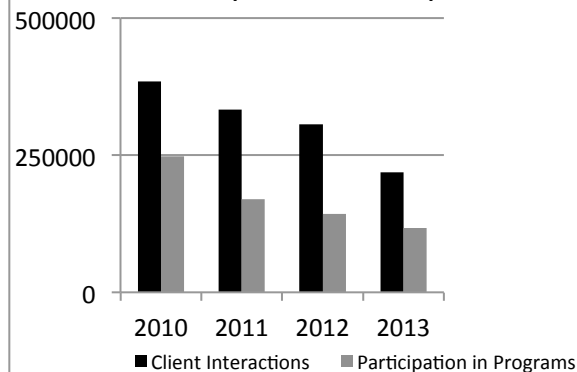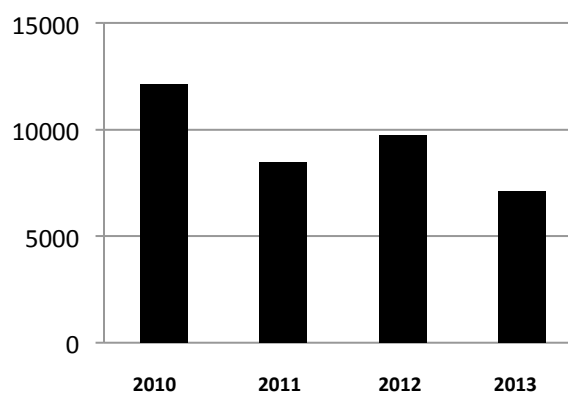
7.2 Cooperative Extension

General

The Cooperative Extension Service engages citizens to help build a better South Carolina by delivering research-based information in the PSA focus areas. As seen in the following graphs, the general client interaction and program participation has remained steady for the past two years, as have the number of programs being offered.

**7.2-1 Community Contacts (In Thousands)**

A bar chart showing Client Interactions and Participation in Programs for years 2010 through 2013. Vertical axis ranges from 0 to 500000.

Legend: ■ Client Interactions   ■ Participation in Programs

7.2-2 Programs Offered

A bar chart showing programs offered for years 2010 through 2013, with values approximately 12000, 8500, 9700, and 7000. Vertical axis ranges from 0 to 15000.
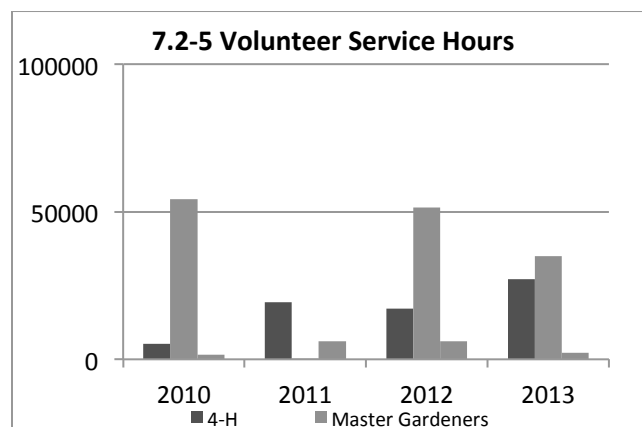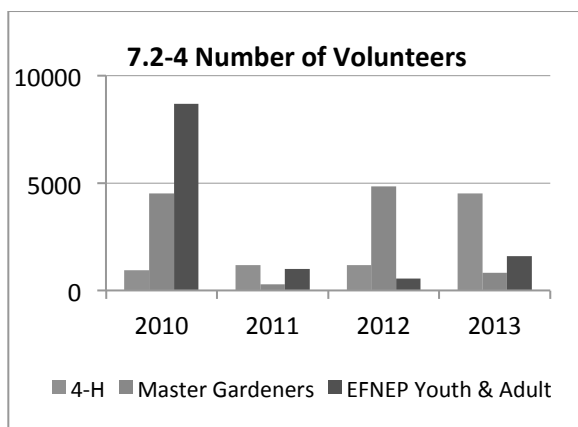
Sustainable Resource Training

Integrated Crop Management (ICM) programs and activities improve profitability for growers and reduce negative impacts on the environment. Agronomic and Horticultural Crops are the primary focus of ICM programs. The number of acres across all programs in SC planted with agronomic crops using ICM practices has increased substantially.
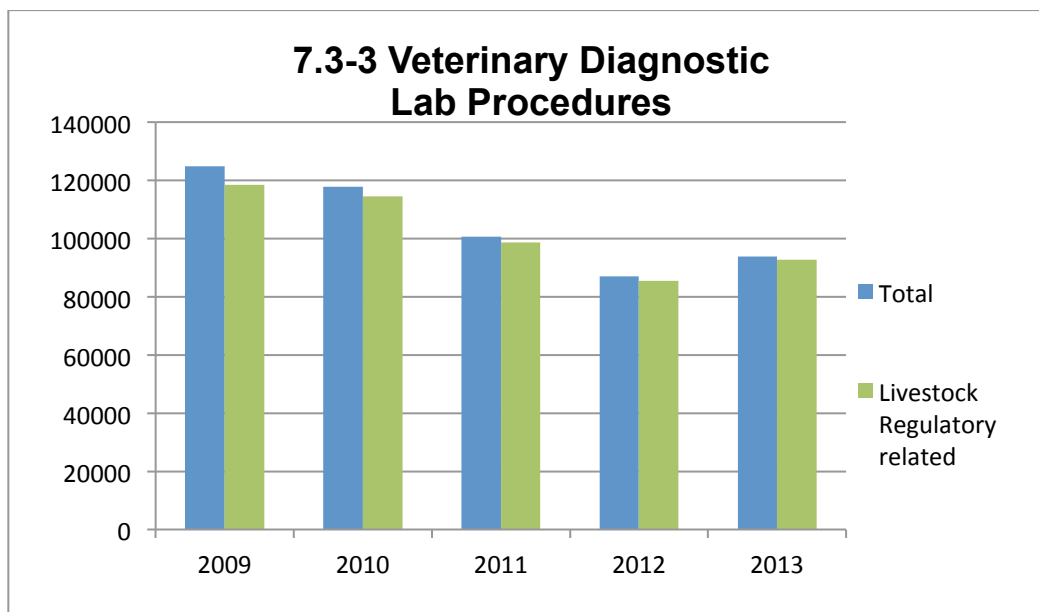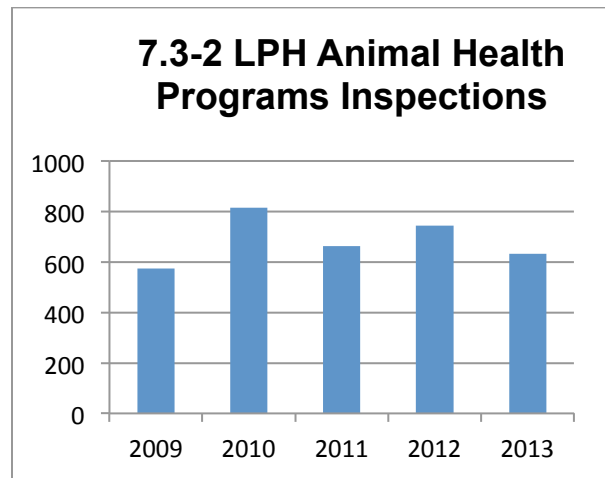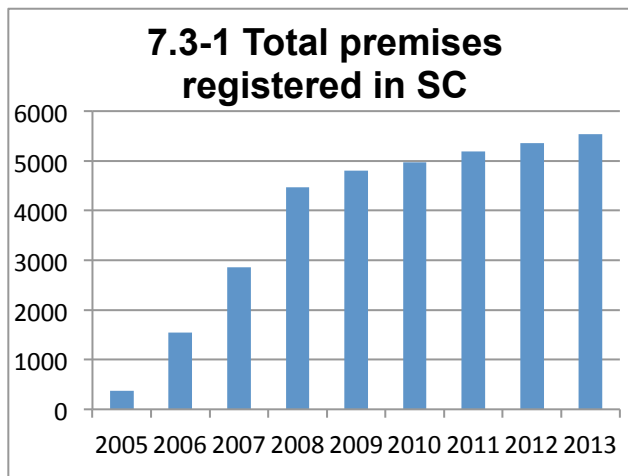
ICM Impact Acres (In Thousands)
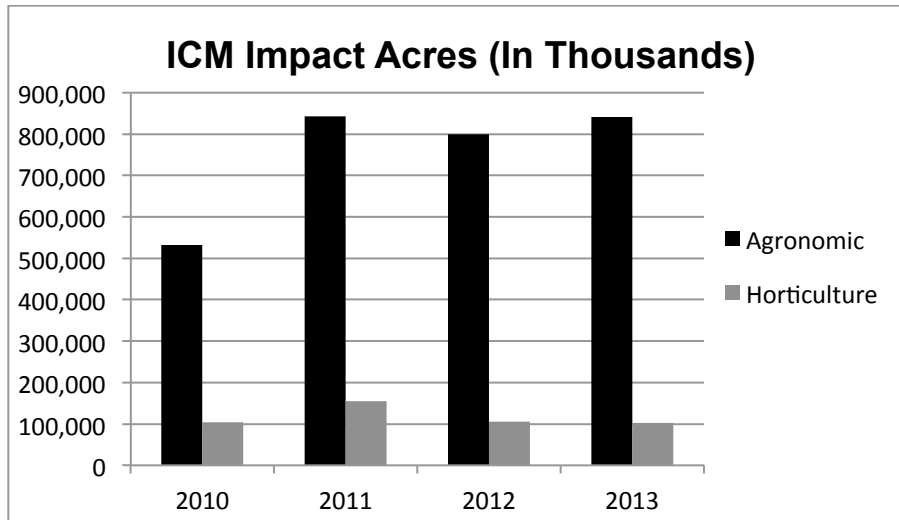
Volunteer Programs

Clemson Extension programs educate and train community members for a variety of programs and services. The trained volunteers donate a substantial number of hours to their communities through service hours in Extension programs such as Master Gardener, Naturalist, Tree Farmer or Wildlifer; 4-H, EFNEP and Family and Community Life. The total value of these service hours in 2012-13 is estimated at $2,576,653.

7.2-4 Number of Volunteers

7.2-5 Volunteer Service Hours

7.3 Livestock-Poultry Health

Livestock-Poultry Health protects the quality of life for humans, as well as companion and food animals through constant surveillance for diseases that affect both humans and other animals, providing the disease diagnoses and inspecting foods of animal origins. One measure of meeting goals is the number of SC animal premises that are registered with Livestock-Poultry Health. A registered premise allows notice for controlling and preventing the spread of diseases that could possibly affect horses and/or livestock. In 2012-13 the total number of registered sites in South Carolina was 5,543.

7.3-1 Total premises registered in SC

Year	Value
2005	~400
2006	~1550
2007	~2900
2008	~4500
2009	~4850
2010	~5000
2011	~5200
2012	~5400
2013	~5550

7.3-2 LPH Animal Health Programs Inspections

Year	Value
2009	~580
2010	~820
2011	~660
2012	~750
2013	~630

7.3-3 Veterinary Diagnostic Lab Procedures

Year	Total	Livestock Regulatory related
2009	~125000	~118000
2010	~118000	~115000
2011	~101000	~99000
2012	~87000	~85000
2013	~94000	~92500

The State of South Carolina continues to strive to maintain a disease-free status to facilitate interstate and international movement of animals. Additionally, certification and licensing of the facilities and individuals ensures quality resources to carry out the mandates of health and safety. Maintenance of high standards is demonstrated through the status of being free of disease and through the on-going review of several agencies.

7.3-2 Animal Diseases for which SC has maintained 100% Disease-Free Status	
Classical Swine Fever, since 1972	Bovine Brucellosis, since 1984
Pullorun-typhoid, since 1980	Swine Pseudorabies, since 1995
Bovine Tuberculosis, since 1981	Swine Brucellosis, since 1998

7.3-3 Summary of Meat Inspection Activity

Year	Individual Inspection Procedures	Slaughter Days	# Livestock	# Poultry (million)	% on-line inspections during slaughter
2009	81,321	2,860	42,265	4.4	100%
2010	82,203	2,808	62,164	4.3	100%
2011	71,992	2,752	37,826	4.5	100%
2012	70,887	2,483	31,854	4.1	100%
2013	70,979	2,050	28,489	4.1	100%

7.4 Regulatory and Public Service

Regulatory Services serves the citizens of South Carolina by protecting our state from invasive plant and insect species, ensuring the safe and effective use of pesticides and fertilizers, providing soil and plant analysis and recommendations, conducting seed and organic certification services and safeguarding our state from catastrophic events affecting agriculture, including potential acts of agroterrorism. Training and exercises have been conducted for all personnel and resources to ensure compliance with Department of Homeland Security requirements for emergency response.
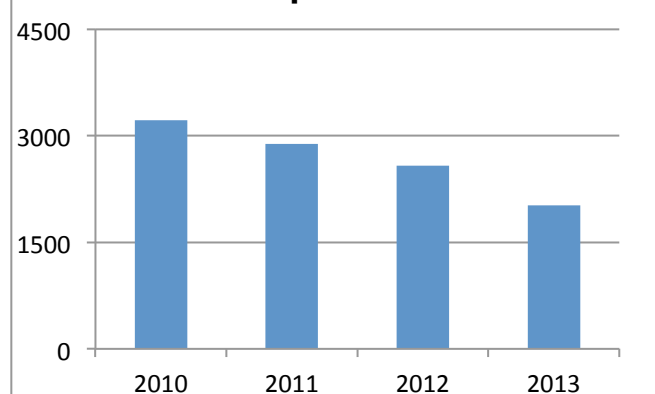
Pesticide Regulation

The Department of Pesticide Regulation is the enforcement and investigative authority in South Carolina for pesticide use, and works to protect health, property, and our environment by promoting the safe and proper use of pesticides. The department is significantly increasing the number of newly licensed turf and ornamental (Category 3) pesticide applicators, an area requiring mandatory licensing since 2006.

The Department of Pesticide Regulation conducted 2,019 inspections this year to ensure the safe and effective use of pesticides and to prevent harm to communities and the environment. Compliance with structural pest control regulations was 69% exceeding the benchmark of 60%.
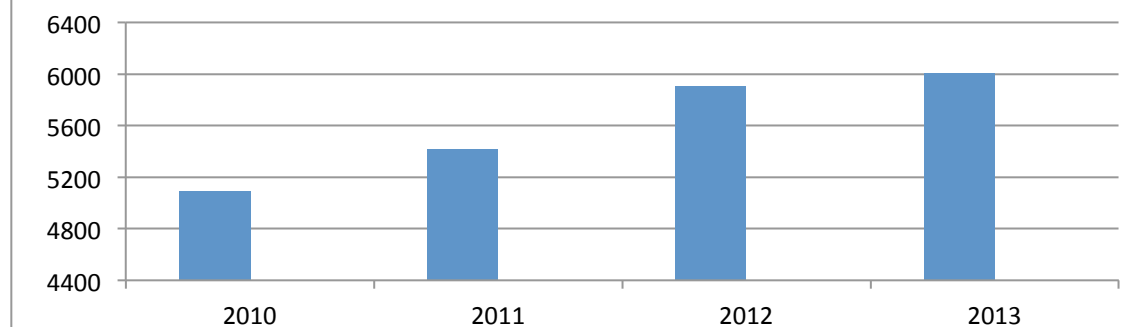

7.4-1 Structural Pest Control Operators In Compliance with Regulations
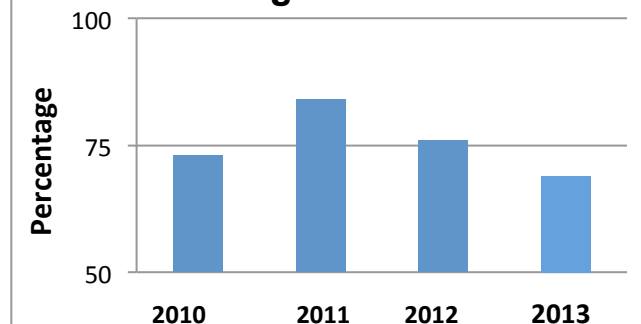
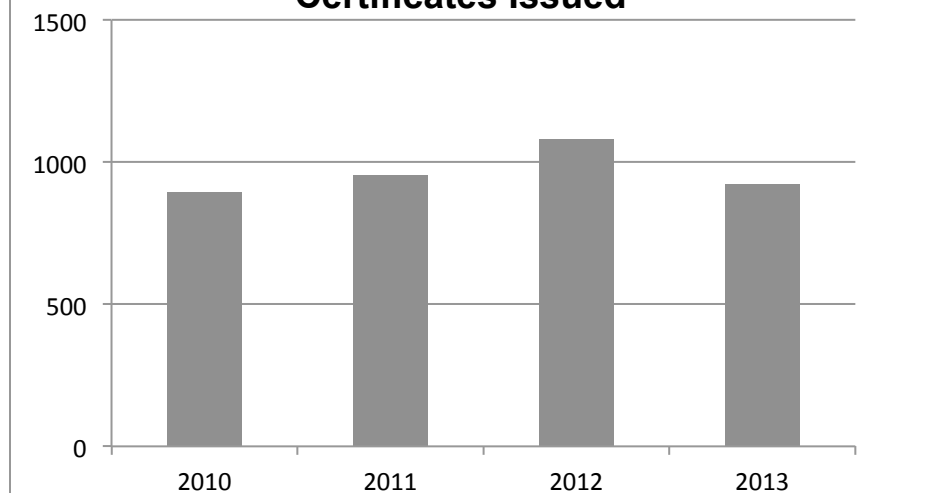7.4-2 Pesticide Regulation Inspections

7.4-3 Number of Pesticide Applicator Licenses Issued

Bar chart showing the number of pesticide applicator licenses issued from 2010 to 2013. Vertical axis ranges from 4400 to 6400. 2010 is approximately 5100, 2011 approximately 5400, 2012 approximately 5900, 2013 approximately 6000.

Plant Industry

The Department of Plant Industry strives to prevent the introduction of new plant pests into South Carolina, as well as the spread of existing plant pests to non-infested locations, through inspections, plant pest surveys, quarantines, and control or eradication programs. Nurseries are required to undergo annual inspection and certification to ensure freedom from pests prior to shipping plants. DPI conducted inspections of 687 nurseries with a 100% rate of compliance with National Plant Board Standards. The department has also maintained a 100% acceptance rate for the 922 phytosanitary certificates requested and issued, reflecting the accuracy and effectiveness of inspections. These certificates facilitate the shipment of plant products from SC to other states and countries for the benefit of both SC producers and the ultimate purchasers of plants. Six targeted plant pest surveys were conducted by DPI inspectors and specialists to detect and mitigate introductions or new infestations of exotic and invasive pests.

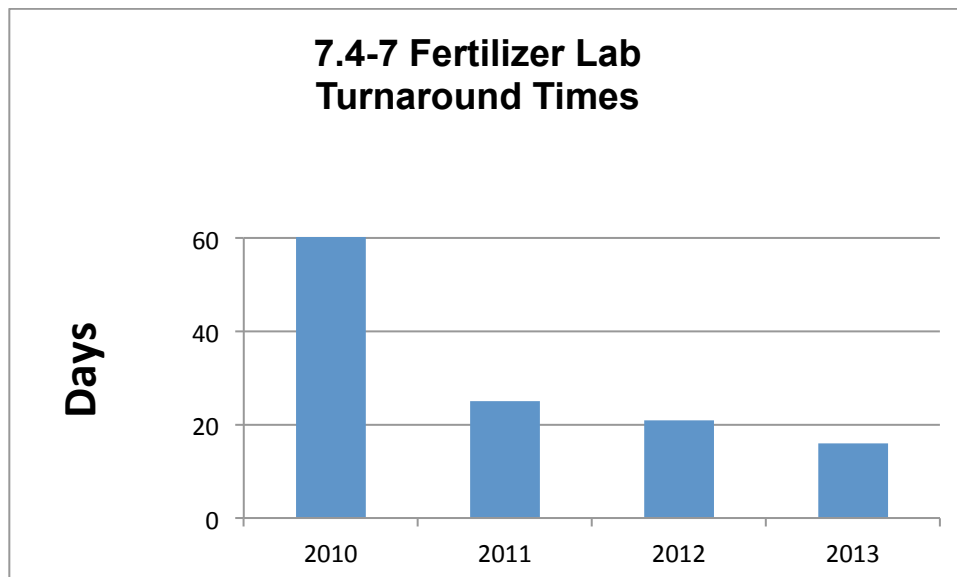**7.4-3 Phytosanitary Certificates Issued**

Bar chart showing phytosanitary certificates issued from 2010 to 2013. Vertical axis ranges from 0 to 1500. 2010 is approximately 900, 2011 approximately 950, 2012 approximately 1080, 2013 approximately 920.
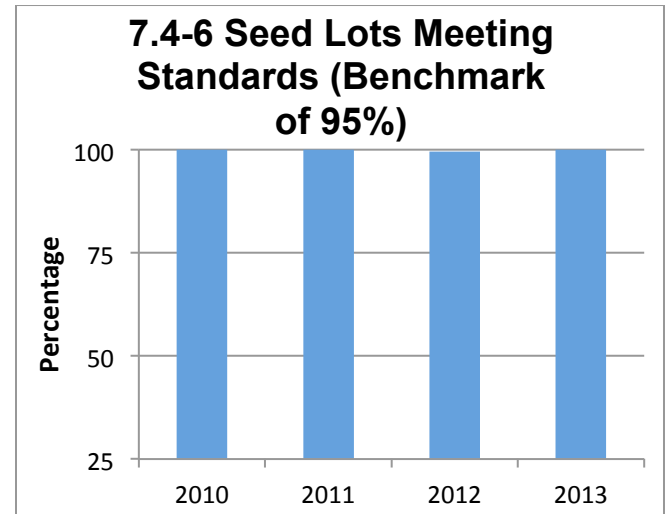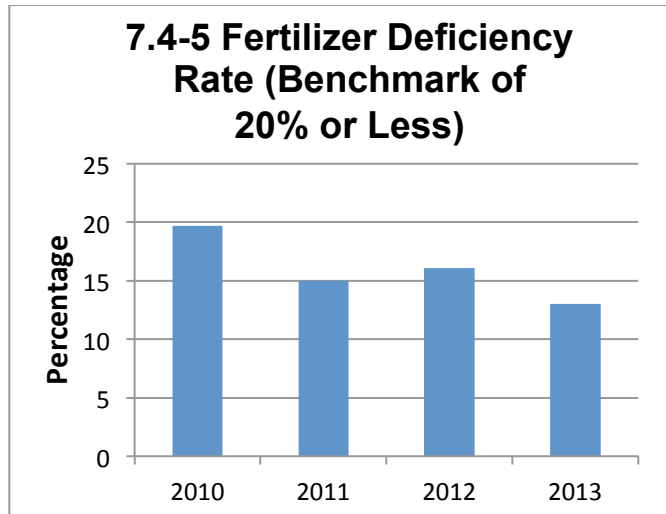
The DPI Plant Problem Clinic provides accurate and timely diagnosis of plant pest and disease samples and viable control recommendations based on this information. During the reporting period, in-house identifications were made for 1,026 plants diseases, 424 insects, 30 weeds and 2,249 nematode assays.

One of the primary inputs for production agriculture is essential plant nutrients or fertilizer. Growers who buy fertilizers that are deficient in nutrients pay for product they do not receive and crop production is reduced as a consequence. This program ensures that fertilizers meet labeled guarantees. During the reporting period, the

department procured and analyzed 1,841 fertilizer samples, of which 238 were found to be deficient, for an overall deficiency rate of 13%, well below the target of 20%. Also, laboratory enhancements and the addition of another chemist have greatly improved efficiency in the lab resulting in a reduction in sample analysis turnaround time from 60 days in 2010 to 16 days in 2013.

Use of certified seed is a best management practice that increases production while reducing cost. The percentage of seed lots (500 bushels or less) inspected for certification that meet purity standards in laboratory tests provides a measure of seed quality and program effectiveness. Seed certification ensures that producers receive the quality of seed that they expect (99.65% in 2012). The Organic Certification program has experienced tremendous growth in the past four years with 111 new operations certified. This growth represents more than 70% of the total number of certified operations (156).

7.4-5 Fertilizer Deficiency Rate (Benchmark of 20% or Less)

7.4-6 Seed Lots Meeting Standards (Benchmark of 95%)

7.4-7 Fertilizer Lab Turnaround Times

7.4-8 Organic Certification Revenue

7.4-9 Organic Certified Operations
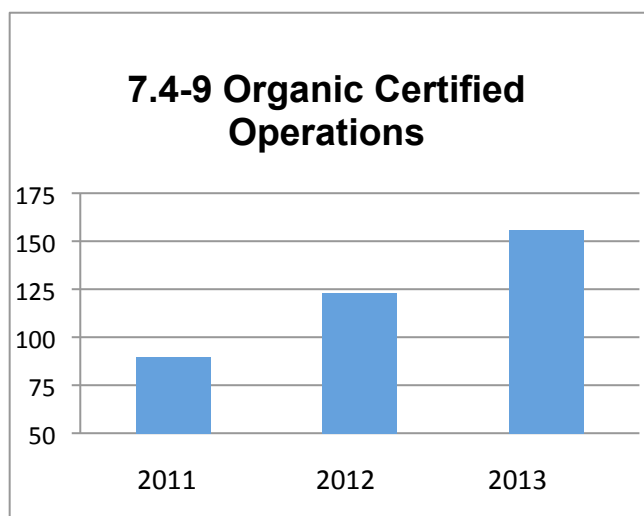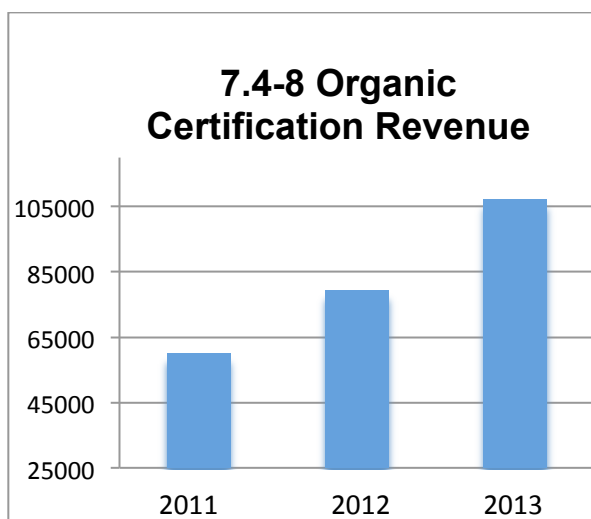
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Appendix

SECTION 59-119-10. Acceptance of the Clemson devise and bequest.

The honorable Thomas G. Clemson having departed this life on April 6, 1888, leaving of force his last will and testament which was duly admitted to probate on April 20, 1888 in the office of the judge of probate for the county of Oconee, in this State, wherein he devised and bequeathed to his executor, Richard W. Simpson of Pendleton, South Carolina, a tract of land situate on Seneca River in the said Oconee County, containing eight hundred and fourteen acres, more or less, known as the Fort Hill plantation, as well as all his other property, both real and personal, except certain legacies in said will mentioned and provided for, all in trust to convey to the State when the State should accept the same for the purpose of establishing and maintaining an agricultural and mechanical college upon said Fort Hill plantation upon the terms and conditions of said will, the State has heretofore expressly declared that it accepted the devise and bequest of Thomas G. Clemson subject to the terms and conditions set forth in said last will and testament and the State Treasurer has received and may securely hold such property, both real and personal.

SECTION 59-119-20. Clemson Agricultural College established; location and studies.

The deed and transfer of such property to the State having been duly executed and made by the executor, in accordance with the provisions of the will, an agricultural and mechanical college has been established in connection with the aforesaid devise and bequest, styled The Clemson Agricultural College of South Carolina and situated at Fort Hill, in Oconee County, on the plantation so devised. In the college shall be taught all branches of study pertaining to practical and scientific agricultural and other industries connected therewith and such other studies as are not inconsistent with the terms of such will.

SECTION 59-119-120. Division of public land fund under act of Congress.

All sums which shall be received by the State from the United States Government under the provisions of the act of Congress, approved August 30, 1890 entitled "An Act to Apply a Portion of the Public Lands to the more Complete Endowment and Support of Colleges for the Benefit of Agriculture and Mechanical Arts Established under the Provisions of an Act of Congress approved July second, eighteen hundred and sixty-two," shall be equally divided between South Carolina State College and Clemson University to be applied to the purposes specified in such act.

SECTION 59-119-140. Annual report by board.

The board of trustees shall make to the General Assembly an annual report of the university, of all farming operations and tests and experiments and of all receipts and expenditures, with a statement of the condition of the property and funds of such university and of all receipts and expenditures of money appropriated thereto by the State.

SECTION 59-119-165. Transfer of certain agricultural funds to Clemson-PSA (Public Service Activities); use of funds; report.

The Budget and Control Board, in conjunction with the Department of Education, shall transfer all federal funds associated with Agricultural Education at the Department of Education to Clemson-PSA (Public Service Activities) no later than July fifteenth of each fiscal year. Notwithstanding any other provisions of law, funds and positions transferred to Clemson-PSA from the Department of Education for Agricultural Education shall be used for personnel positions and related office and travel expenses to provide overall leadership, coordination, and structure for agricultural education programs, and South Carolina Association of Young Farmers activities in the public schools of this State. Clemson-PSA shall provide a report to the Department of Education on the use and expenditure of the federal funds transferred by the Department of Education to Clemson-PSA no later than December first of each fiscal year.

SECTION 4-11-50. Each county shall have farm and home demonstration agents.

The extension service of Clemson University shall place at least one farm and one home demonstration agent in each county in this State, subject to confirmation by a majority of the county delegation, such agents to be employed as at

present and payment of their salaries to be made through the treasurer of the extension service as provided for the payment of that portion of the salaries of such agents contributed by the State and Federal governments.

In Berkeley County, appointments made pursuant to this section are governed by the provisions of Act 159 of 1995.

In Dorchester County, appointments made pursuant to this section are governed by the provisions of Act 512 of 1996.

Mandates

USDA Cooperative State Research, Education and Extension Service www.csrees.usda.gov/

Morrill Act 1862 www.csrees.usda.gov/about/offices/legis/morrill.html

Provided, That the monies so invested or loaned shall constitute a perpetual fund, the capital of which shall remain forever undiminished (except so far as may be provided in section 5 of this Act), and the interest of which shall be inviolably appropriated, by each State which may take and claim the benefit of this Act, to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes on the several pursuits and professions in life.

Hatch Act of 1887 www.csrees.usda.gov/about/offices/legis/pdfs/hatch.pdf

The Hatch Act of 1887 authorized federal-grant funds for direct payment to each state that would establish an agricultural experiment station in connection with the land-grant college established under the provisions of the Morrill Act of 1862, and of all supplementary acts.

Smith-Lever Act 1914 www.csrees.usda.gov/about/offices/legis/pdfs/smithlev.pdf

SEC. 1.[1] In order to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture,[2] home economics, and rural energy,[3] and to encourage the application of the same, there may be continued or inaugurated programs in connection with the college or colleges in each state.

Legislative Authorization for Clemson Public Service Activities

Extension Agricultural Service Laboratory (ASL)

ASL provides research-based, scientifically sound information based upon analytical testing of soil, plant tissue, forage, animal waste, irrigation water, and compost samples to guide proper nutrient and resource management.. Authority to provide these services is derived from Section 46-7 of the South Carolina Code of Laws.

Livestock-Poultry Health Programs - Animal Health and Diagnostic Laboratory:

Provides statewide surveillance for diseases that affect both humans and other animals. Enforces state and federal animal health laws and regulations. Protects animal and public health through eradication and control of endemic, foreign, and emerging diseases. Provides veterinary diagnostic laboratory facilities and diagnostic expertise to assist veterinarians, animal industries, and animal owners in diagnosing livestock and poultry diseases of economic impact. The laboratory provides diagnostic assistance for diseases of companion animals and wildlife. Coordinates the statewide animal emergency response planning to protect animal health, public health, and food safety in the event of major disasters, whether natural or manmade. Sections 47-4-10 et seq. of the SC Code of Laws authorizes Clemson-PSA to perform these duties as assigned by law.

Livestock-Poultry Health Programs - Meat and Poultry Inspection:

Administers an inspection program for state permitted meat and poultry slaughter and processing facilities in cooperation with USDA FSIS. Sections 47-17 and 47-19 of the SC Code of Laws authorize Clemson-PSA to perform these duties as assigned by law.

Regulatory and Public Service Programs: Plant Industry:

Delivers statewide programs to ensure the quality of fertilizer and lime through registration, inspection, and analysis; to provide certification programs for the nursery, organic, and seed industries; to prevent and control plant and honeybee pests; to deliver quality assurance and identity-preserved programs for value-added planting stock; to approve the release of genetically modified organisms in the state; to enforce the imported red fire ant quarantine; to carry out the boll weevil eradication program; and to deliver homeland security programs related to plant agriculture with the mission of prevention, mitigation, and emergency response. The following sections/chapters of the SC Code of Laws authorize the above listed regulatory functions: 46-7, 46-9, 46-10, 46-21, 46-23, 46-25, 46-26, 46-33, 46-35, 46-37.

Regulatory and Public Service Programs - Pesticide Regulation:

Carries out state and federal mandated programs of pesticide regulation to ensure safe and legal use of pesticides in the state through product registration, licensing of dealers and applicators, and conducting misuse investigations. Related programs include pesticide container recycling, groundwater sampling and analysis, Integrated Pest Management in schools, Federal Worker Protection Standard and Endangered Species programs. Legal authority for these programs is derived from the SC Code of Laws Section 46, Chapters 1, 7, 9 and 13 as well as the Federal Insecticide, Fungicide, & Rodenticide Act, the Worker Protection Standard Regulations and the Endangered Species Act.

Agricultural Biosecurity

Coordinates statewide surveillance for naturally occurring and introduced diseases and pests of agricultural plants and animals under Homeland Security Presidential Directives 8, 9, and 10. In addition, educational programs are developed and implemented for disaster preparedness, prevention, mitigation, and response for agricultural chemicals, plants or animals, whether those disasters are natural or manmade. Sections 46-7-30 et seq. and section 46-9 of the SC Code of Laws authorizes these activities.