

## Accountability Report Transmittal Form

Agency Name: **Public Service Activities – Clemson University** \_\_\_\_\_

Date of Submission: **September 15, 2010** \_\_\_\_\_

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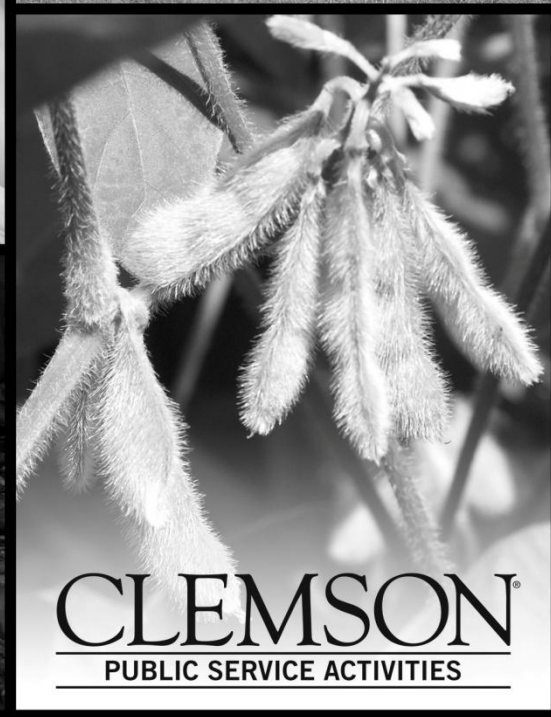
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# Clemson University Public Service Activities

Budget and Control Board

Accountability Report for 2009-2010



**CLEMSON**<sup>®</sup>  
PUBLIC SERVICE ACTIVITIES

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**About the cover pictures** (clockwise from top): **Precision agriculture** research at the Edisto Research and Education Center has developed new equipment to accurately map soil types in a field and new software to reduce crop spraying time using GPS technology. **Cotton** research evaluates varieties, pesticide systems, plant growth regulators, and harvesting equipment and techniques. **Beef cattle** research and Extension programs help the S.C. Cattlemen’s Association improve quality, productivity and profitability for cow and calf producers through bull testing and forage-fed programs. **Soybean** growers saved \$25 million by following Extension and Regulatory Services recommendations for early planting, monitoring and reducing pesticide sprays for Asian soybean rust, which has devastated crops in other areas. **Peanut** research and Extension programs have increased yield and improved disease resistance, with an economic impact of more than \$3 million. **Poultry** producers are saving 40 percent or more on heating, cooling and lighting costs, and improving flock health through research, Extension and Livestock Poultry Health programs.

## I-1 Mission

### *Science, Service, Solutions – Clemson University Public Service Activities (PSA)* *Return on your investment!*

In 1940 an average American farmer could feed 19 people. Today the average farmer feeds 155 people. The growth in agricultural productivity over the past 70 years can be attributed largely to investments in agricultural research and technology development [USDA n.d.]. Research results reach the farmer through the Cooperative Extension Service. PSA's two regulatory agencies help ensure that animal and plant agriculture is safeguarded from diseases and other injurious pests. Our mission focuses on the \$34 million agriculture and forestry industry and natural resources. Agriculture and forestry exceed tourism as the state's number one industry, employing 200,000 people (Miley, Gallo & Associates, 2008).

PSA's Experiment Station research and Extension outreach of that research to our clients and regulatory programs are the keys to economic development and job creation throughout the state.

#### **Powerful Impacts and Return on Investment**

- **\$182 million** in return on agricultural research – based on 12 to 1 rate of return on investment in agricultural research (Huffman and Evanson, 1993); SC ranks 4<sup>th</sup> in the nation on converting agricultural research dollars into revenue for the state
- **\$5.8 billion** in return on investment in agriculture – based on \$10 billion direct output of agriculture in South Carolina (Miley, Gallo & Associates, 2008) and 58% internal rate of return of through cooperative extension programs (Gardner and Rausser, 2001)
- **\$6.2 billion** return on investment in forestry – based on \$11 billion direct output of forestry in South Carolina (Miley, Gallo & Associates, 2008) and 58% internal rate of return of through cooperative extension programs (Gardner and Rausser, 2001)
- **4-H youth, by grade 8**, are 1.6 times more likely to attend college than their peers and 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 4-Hers earning an undergraduate degree versus high school diploma only (Battelle, 2004)
- **46 county extension** offices deliver tens of thousands of programs each year to hundreds of thousands of commercial growers, livestock producers, forest and natural resource managers, institutional food services, homeowners and families across the state
- **Animal and plant production** is protected by regulatory programs that mitigate disease and non-native species introductions that cost the U.S. over \$138 billion in annual losses (Pimentel et al., 1999)
- **\$25 million** saved by SC soybean growers following PSA's scientists' soybean rust pesticide scouting and spray recommendations

- **\$10 million** potentially saved by SC soybean growers if PSA scientists' reduced seeding rates are implemented
- **\$3 million** saved by SC peanut growers following PSA scientists' recommendations
- **2.2 million pounds of pesticide containers have been recycled** since 1993, helping to protect the environment from potential pesticide contamination
- **Veterinary Diagnostic Center** completed 117,950 tests and procedures during FY09-10 in performing its animal and food safety diagnostic duties protecting the \$6 billion SC animal industry

We are highly qualified men and women with a passion for improving the quality of life for South Carolinians through public service in our focus areas. We also have state and federal mandates to protect animal and plant health. We believe, as did Clemson University's founder Thomas Green Clemson, that education can create a better way of life for the people of South Carolina. Clemson University was founded in 1889.

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.

### ***Science, Service, Solutions – Return on Investment: 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 & community development, and youth & 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.
- **4-H Youth Development** programs provide leadership, citizenship and life skills training to prepare the state's workforce to compete in a knowledge-based economy.
- **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 environment and the crop-plant food supply by ensuring the safe, effective use of fertilizers and pesticides, and the quality of seeds and plants grown in the state.
- **PSA Institutes** conduct research and outreach in economic and community development, family and neighborhood life, genomics, and governmental and public affairs.

## ***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 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.

### **Clemson University Public Service Activities Mission**

- *advancing the competitiveness of the \$34 billion agriculture and forestry industry*
- *enhancing the economic potential of rural communities*
- *safeguarding the food supply*
- *preserving natural resources*
- *preparing young people to become productive citizens*

## I-2 Major Achievements from 2009-10

### *Powerful Impacts and Return on Investment*

There is no debate about the tough times facing many South Carolinians and our state government. Indeed, one can readily argue that there are few times in recent history as daunting. Our state faces double digit unemployment, precipitous declines in state revenues, rising energy costs, the housing bubble, potential drought, and environmental challenges – all in the midst of population growth and development. We strongly believe that there also has never been a more relevant time for the work of Clemson’s Public Service Activities. As *Newsweek* reports in the Aug. 23, 2010 issue: “*The country that out-educates us today will out-compete us tomorrow,*” U.S. 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—one substantially larger than the deep recession the country is currently experiencing.*”

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

Achievements are presented by PSA unit to include 1) Experiment Station, 2) Cooperative Extension Service, 3) Livestock-Poultry Health, 4) Regulatory Services, and 5) PSA Institutes.

### EXPERIMENT STATION

[www.clemson.edu/public/experiment\\_station/](http://www.clemson.edu/public/experiment_station/)

Clemson's Experiment Station is part of a nationwide system of scientists working to improve the quality of life for people in their home state, the nation, and the world. Clemson researchers have produced more than 100 new varieties of food and fiber crops, as well as 46 patents.

In 2009-10 the Experiment Station had more than 115 active research projects. Researchers issued nine intellectual property disclosures, submitted eleven patent applications, and received three patents. One license agreement was signed. Faculty also submitted 149 technical contributions for publication.

Major achievements for 2009-10 include:

- Clemson beef cattle experts are working with the SC Cattlemen’s Association to **improve quality, productivity and profitability for cow and calf producers**. Tests evaluate the growth rate of bulls consigned by purebred breeders. The results allow producers to compare their breeding and management programs to the rest of the state’s purebred industry. This helps both consignors and buyers identify bulls with superior growth, conformation and fertility for their breeding program. Records indicate there has been great improvement of the bulls in all three areas.
- Three new soybean varieties have been released by Clemson scientists. The **new varieties have good yield potential, improved resistance to nematodes and diseases, and tolerance to glyphosate herbicide**. Soybeans are used in foods for humans and animals, as cooking oil and as biofuel. They are an \$80 million crop in South Carolina and are grown on more acres than any other row crop in the state.

- The poultry industry provides about \$1.5 billion a year to South Carolina's economy. Clemson scientists consult with poultry producers to help **lower their energy costs and improve operations**. They evaluate systems for ventilation, insulation and lighting, which have a major impact on animal growth and health as well as fuel expenses. Savings can be 40 percent or more on heating, cooling and lighting costs. Research has also found that chicken and turkey house litter is valuable as a fertilizer for pine trees that produce pine needles for landscaping. Poultry growers now have another option to dispose of manure and pine-needle producers have a source for a low-cost, natural fertilizer.
- In 2002, only 22% of the cotton planted in South Carolina was high-yielding varieties. This increased to 70% by 2009 because of efforts by Clemson scientists to improve yields through field studies at the Pee Dee and Edisto Research and Education Centers, as well as on commercial farms. Each year, **some 30 studies evaluate cotton varieties, pesticide systems, plant growth regulators, and harvesting equipment and techniques**. They also analyze agronomic practices, such as plant density, planting date, tillage systems and irrigation. The research has helped to increase per acre cotton yield significantly by developing and identifying varieties that are more weed-and disease-resistant, hardier and more productive. This information is needed to support the cotton industry, which **generates more than \$10 billion in revenue and 100,000 jobs in North and South Carolina**.
- Equipment designed by Clemson scientists was tested at Clemson's Edisto Research and Education Center in Blackville and demonstrated that it can **produce a map that shows exactly what types of soil are in a field**. Soil texture is important for making critical agricultural decisions, such as applying irrigation, fertilizer and pesticides, or deciding whether or not to deep till. Called the Veris 3100, the equipment measures conductivity of the soil using electrically charged discs. Heavy soils containing clay and organic matter are better conductors than light, sandy soils. This equipment allows a farmer to divide a field into zones and manage each differently for fertilizer, nematodes, weed control or irrigation. By putting exactly what is needed in each zone, **farmers can save time, energy and money while protecting the environment**.
- New software has been developed at Clemson for use with crop-spraying machinery that could **save scientists valuable time in their field research**. This software makes it possible to use an innovative multi-boom crop sprayer to deliver 12 treatments in one pass. The machinery is pulled by a tractor that is guided by satellite positioning technology. The apparatus has the ability to turn itself on and off and apply multiple treatments based on which small plot it is traveling through. The system is used for research on pesticides and other chemical treatments for crops. It means that a procedure that used to take six hours to deliver 24 treatments now takes just 30 minutes. This will **accelerate the knowledge transfer time from researchers through Extension agents to growers**.
- A Clemson University forestry professor has developed a method to **determine how much value wildlife adds to the value of forestland**. The method provides an economic tool for rural land appraisers and landowners to analyze new financial opportunities. Using appropriately adjusted southern hunting lease revenue rates, hunting leases increased forestland values by \$160.25 per acre on average. This valuation model can be readily adapted to most forestland management plans. Appraisers often incorporate the many



characteristics of the forestland when determining a value, but the added value of a simple hunting lease should also be considered.

- About 130 agricultural plants in the United States are pollinated by bees, and the annual value of honey bee pollination to U.S. agriculture is estimated at over \$9 billion. The honey bee is facing serious challenges from pests and diseases. Clemson research on integrated pest management approaches focus on the small hive beetle that feeds on honey and pollen in the hive, fouls the honey and destroys bee food supplies. Clemson scientists have identified **optimal pesticide applications to keep the pest population below the economic injury level**. Some beekeepers in the Southeast cut costs and losses \$2,000 by using improved pest management practices.
- Clemson scientists have **confirmed the first incidence in South Carolina of the pathogen that causes sudden oak death**. Called *Phytophthora ramorum*, the fungus-like organism has killed thousands of oaks and associated plant species in the coastal forests of California and southwest Oregon. It also has attacked ornamental plants in nurseries and landscapes in the United States and Europe. South Carolina's climate is similar to northern California's and if the pathogen takes hold, it could cause significant damage to the forest and nursery industries. Forestry industry is a \$16.8 billion industry in South Carolina. Hardwoods cover more than half the state's 12 million acres of forests. The "green" industry – turf and ornamental crops – is the state's No. 2 agricultural commodity, valued at \$290 million. The disease easily spreads by moving nursery plants that are hosts, including camellias, rhododendrons, azaleas and mountain laurels. Symptoms look like many common plant diseases: leaf spot, tip burn, dieback, leaf lesions and bleeding cankers. PSA's Regulatory Services passed state legislation to restrict the shipment of host plants into SC from US Department of Agriculture's (USDA) regulated areas. USDA followed suit with similar federal legislation. Clemson scientists sample and analyze host plants to continue to monitor for this disease. Where the pathogen is found control measures are implemented.
- Clemson turfgrass specialists are suggesting painting golf course putting greens to **keep the green in bermudagrass over the winter**. Special paints – which are dyes, not oil-based – are already used on some courses in South Carolina. Over-seeding continues to be the dominant winter practice for areas like Myrtle Beach, since real grass is more attractive to people from northern states coming south for winter golf. Winter painting avoids the added cost of over-seeding, which can weaken the underlying bermudagrass during the spring transition. In addition, research shows that plots painted in December and February greened up in spring before unpainted dormant plots due to higher solar heat absorption.

### COOPERATIVE EXTENSION

[www.clemson.edu/extension/](http://www.clemson.edu/extension/)

Since the national Extension Service was founded in 1914, the Clemson Extension Service has met 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.

New knowledge was **personally delivered through 384,807 contacts** made by Extension personnel. Working across all 46 South Carolina counties, **more than 247,529 participants attended 12,136 Extension programs.**

Major accomplishments for 2009-10 include:

- As a result of the **Animal Production** programs, 8,772 participants completed programs, such as Master Cattleman, the Grass Masters program, Cattleman's Day and Bull Sale, the Artificial Insemination School, Backyard Poultry Clinic, goat and sheep seminars, and the USDA Small Farm Workshop. Since last Fall, 211 producers were certified in the national Beef Quality Assurance Producers improved breeding, reproduction health and grazing management systems. Some 1,065 producers improved forage cultivars. During the 2009 Census of Agriculture the market value of cattle sold in South Carolina was estimated at \$105,000,000. In addition, educational programs were conducted to certify newly permitted confined-livestock and poultry producers to provide annual re-certification training for all permit holders, as required by state law. Over 827 livestock producers attended Extension recertification trainings to maintain their permits and 68 producers earned first-time certification.
- **Integrated Pest Management (IPM)** strategies were applied on 43,335 acres of collards and 150,000 acres of cotton. Preliminary trials of a string bloom thinner in South Carolina peaches shows that **labor costs** to remove green fruit, 35 DAFB (days after full bloom), **were reduced by \$111 to \$137 per acre.** While this was the targeted outcome, the amount of fruit greater than three inches in diameter increased by 15-22%. This affords both a costs savings and an increase in product value. With production acreage in South Carolina increasing as well as labor and other production costs rising, continued research is underway to fine tune operational function of the equipment. Hopefully, this will lead to grower acceptance and commercial field application.
- Over 22,457 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 website recorded more than 2.2 million visits last year. Some 5,842 consumers and horticulture professionals participated in programs. Over 336 new Master Gardeners were trained. Master Gardeners provided 54,368 hours of volunteer horticulture services to communities, which represents a \$978,624 value of program support.
- In the area of **Sustainable Production Systems for Agronomic Crops**, the gross value of Soybean Production in SC is \$139 million. The potential yield loss due to Asian Soybean Rust is \$13,900,000. Based on Clemson recommendations, South Carolina growers spray less pesticides to control rust, **saving \$25,230,000.**
- The research on selected soybean seeds showed that the seeding rates can be reduced by 40% (from 137,500 to 82,500 seeds per acre) if soybeans are planted during the optimum planting window. With this reduction, the **savings would be \$18 per acre.** With high anticipated soybean acreage this year (about 560,000 acres) South Carolina growers would **save about \$10 million.** Therefore, the profitability of soybeans can be significantly increased with reduced seeding rates.
- The Clemson Extension Peanut program had a **total economic impact of over \$3 million.** A conservative estimate shows that the program is increasing yield and improving resistance to diseases.

- **Nutrition educators conducted 4,084 programs** for 51,097 children and youth. More than 18,075 participants reported using the practices that were taught. Agents conducted 324 programs for the general public, reaching 6,597 adults with nutrition, physical activity and health information. Over 829 media programs were delivered covering topics of Food Safety, Nutrition, and Health. This represents newspaper articles published in newspapers, other external publications, and information on radio and television. A grant of \$273,000 was received to conduct a pilot study to determine the effect of a nutrition/food safety intervention targeting older adults participating in the South Carolina congregate Nutrition Program (Cooking Healthy Eating Smart). It aims to sustain or improve the health of older South Carolinians so they can live independently longer. Another proposal (\$14,000) was submitted to conduct a feasibility Study for a Specialty Crop Food Business Incubator. The study would assess support for locating a community kitchen/food business incubator at the new State Farmer's Market in Columbia.
- **Farmers markets** throughout the state impact both the small farm producers and the community at large. An example is the Conway Farmers Market Association, which was formed as a seasonal 22-week market in downtown Conway. The market engaged over 20 local producers/vendors, had an average attendance of 300, and resulted in estimated weekly sales exceeding \$3,300.00. The inclusion of the Supplemental Nutrition Assistance Program in overall market operations ensured the availability of market goods to citizens with limited access to fresh fruits and vegetables. As a volunteer community development effort, the Downtown Conway Farmers Market was able to garner support from the local business community through sponsorships in excess of \$5,000 as well as volunteer time valued at an additional \$5,000. Seasonal market sales were estimated as high as \$56,000, leading to increased exposure for market activities well beyond the Conway region.
- In an effort to reduce food-borne illness, agents conducted **ServSafe®** food safety training for managers, supervisors, and other food handlers. A total of 245 food service employees received a course completion certificate, representing 199 food establishments. These food handlers can potentially affect 52,819 people. The National Restaurant Association has estimated that the average cost of a food-borne illness outbreak to an establishment is about \$75,000. The approximate economic value of the trainings could be as high as \$14,925,000 by preventing outbreaks.
- **Some 1,019 people participated in Palmetto Leadership, Senior Leadership and Junior Leadership programs.** 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. The Palmetto Leadership program provides participants with a venue to give back to their community through a class service project experience. Participants are able to grow their professional and personal networks, providing new opportunities for collaboration and more efficient and effective community service. Historically, most graduates of the leadership class will involve themselves on boards, community action groups, and task forces to help the community. Class members have become members of non-profit boards. Our last research indicated that 70% of the graduates were still involved in a responsible community project three years after graduation. Some 108 people in other programs successfully collaborated with others in the region to address an issue.

- **4-H conducted 3,080 programs that reached 40,230 youth and families.** In addition, 935 adult volunteers were trained, who then trained 8,452 youth in leadership development; hunting safety; plant and animal projects; science, technology and engineering projects; day and overnight camping; financial/resource management; and nutrition, health and fitness. Adults contributed 5,175 hours of volunteer service, which represents a \$93,150 value of program support. Coordinators and volunteers of afterschool 4-H programs have reported that youth are learning organizational and time management skills that will be useful as they enter college. Volunteers reported seeing significant improvement in the children's overall reading, writing, and math skills as well as the children's willingness to work together as a team to solve problems and make decisions. In addition, there were reports that the children's self-confidence and self-pride increased.
- More than **1,468 hours** were contributed for the Expanded Food and Nutrition Education Program (EFNEP), which represents a **\$26,424 value of program support.**
- A total of **1,307 programs** were conducted to promote **sustainable forestry and natural resources management**, and enhance environmental quality. These programs, including Master Tree Farmer, Master Naturalist, Master Wildlifer, and the Carolina Clear stormwater education program reached 33,244 participants. Master Naturalist volunteers provided 4,500 hours of service, which equates to a value of \$81,000 in program support. Over 5,000 people have participated in Certified Erosion Prevention and Sediment Control Inspector program with over 4,200 completing certification.
- Extension **sustainable forestry** educational programs were delivered to 2,289 people who manage 685,000 acres of forest land, with average savings of \$425,000 in management costs. These 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.
- Extension collaborated with other state agencies to develop alert systems and response plans for exotic plant/animal diseases and pests. Training exercises were conducted for state and local responders to ensure readiness. The **SC Ag-Watch** program enhances on-farm preparedness and response through **increased awareness of foreign plant and animal diseases/pests, biosecurity practices, and notification procedures.** Staff members have been trained according to Department of Homeland Security requirements and certificates of training are on file.

## **LIVESTOCK-POULTRY HEALTH**

[www.clemson.edu/lph/](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 (3) 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. Veterinary diagnostic support for wildlife also is provided by the diagnostic laboratory.

- **Animal Agriculture in SC represents over \$6 billion and 37,253 jobs in the overall state economy** with a direct economic impact of \$1.24 billion and 11,782 jobs. 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 816 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 program "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 billion in 2009**, monthly letters were issued certifying South Carolina's status for certain poultry diseases. A total of 240 these letters were signed by the state veterinarian during FY09-10 as a condition for import to certain countries.
- The **salmonella outbreak** this summer, caused by contaminated eggs from Iowa farms, brought to light **a key difference with South Carolina producers**. For the past 12 years, South Carolina commercial egg producers have participated in voluntary salmonella control programs to prevent the disease in laying hens. Part of this program includes testing egg farms for salmonella at Clemson Livestock Poultry Health. More than 500 samples are tested each year. As a result of the voluntary effort, no South Carolina produced eggs were involved in the recall.
- **SC Ag-Watch** program led by LPH is providing training and materials to livestock owners about improved biosecurity practices, foreign animal disease awareness, and notification procedures. This approach adds a new emphasis on prevention of disease to the traditional roles of disease surveillance, control, and eradication. The South Carolina Ag-Watch Manual has been printed and is being delivered to 1,587 individuals who have already completed a class with the program. These manuals will also be used by state and local emergency managers as a reference for future agricultural emergencies. Remaining copies will be distributed as part of future educational efforts.
- The **Veterinary Diagnostic Center** completed 117,950 tests and procedures during FY09-10 in performing its animal and food safety diagnostic duties. Of these 114,579 were related to regulatory duties and production animals; the remaining 3,371 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, U.S. Army Veterinary Service Senior Warrant Officer Council, South Carolina Interagency Food Safety Council, South Carolina Department of Agriculture and the South Carolina Department of Health and Environmental Control.
- SC Meat-Poultry Inspection completed its **annual audit** by the U.S. Department of Agriculture, Food Safety Inspection Service of its self-assessment review. SC Meat and Poultry Inspection program continues to be found at least "equal to" the federal program. Department activities

included 100% on-line inspection during slaughter operations on 2808 slaughter days of approximately 62,164 livestock and over 4.3 million poultry. Additionally, during daily inspection in 89 processing facilities, 82,203 individual inspection procedures were performed.

- A three-day **Hazard Analysis Critical Control Point (HACCP)** training session was conducted by Meat-Poultry Inspection. The session was successfully completed by 22 meat and poultry industry personnel from South Carolina.
- South Carolina's **ability to respond to an animal emergency** was enhanced by participation in Foot and Mouth Disease exercise in NC at the invitation and expense of NC Emergency Management. Events that may require support from the National Veterinary Stockpile (NVS) were enhanced by LPH participation in exercises in AL and MS dealing with Rift Valley Fever at the invitation and expense of USDA. Poultry disease response readiness was enhanced through grant funded participation in NC Poultry Strike Team training by SC team members.
- LPH maintained AAVLD laboratory accreditation and met NVSL accreditation standards for all technicians to be proficiency certified.
- LPH Animal Health Programs initiated a Department of Homeland Security grant-funded project entitled **Regional Food and Agriculture Criticality Assessment Project** in concert with other southeastern states. Project goals are to identify South Carolina's food and agricultural businesses/commodity flow chains and to determine which have economic or human health significance across multiple jurisdictions should they be affected by a terrorist attack or natural disaster.

## REGULATORY SERVICES

[www.clemson.edu/public/regulatory/](http://www.clemson.edu/public/regulatory/)

Regulatory Services protects the environment and the food supply by ensuring the safe, effective use of fertilizers and pesticides, and the quality of seeds and plants grown in the state; analyzes plant pest samples, providing control recommendations if needed; and conducts programs to prevent, respond to, and recover from, catastrophic events affecting agriculture, including agroterrorism.

- **Established the Molecular Plant Pest Diagnostic Lab (MPPD Lab).** The Department of Plant Industry (DPI) acquired Farm Bill funding, which enabled: hiring a molecular biologist, funding an administrative position to enter and track samples, and acquiring additional equipment necessary for USDA certification, which currently is being pursued. The MPPD lab has already enabled DPI to detect the presence of *Phytophthora hibernalis* in SC, a pathogen of citrus, rhododendron and other plants, not previously found in our state. It has also enhanced the DPI contribution to the *P. ramorum* national survey by facilitating the running of *P. ramorum* (sudden oak death) water samples near sampling sites.
- DPI was influential in USDA's decision to develop and publish a new federal order requiring nurseries in regulated or quarantined areas to **pre-notify recipient states of shipments of *Phytophthora ramorum*** host and associated plants. This will help prevent the introduction and establishment of this disease with potentially devastating impacts for South Carolina's forests, landscapes and environment.

- DPI, along with Clemson Livestock-Poultry Health and the SC Department of Agriculture, **developed the SC Agwatch Manual**, a handbook on biosecurity measures for SC farm producers and food processors. The handbook has been released to high praise and many requests for copies from other agencies throughout South Carolina.
- **New Agroterrorism Course** is now offered through the Strom Thurmond Institute. David Howle and Christel Harden developed and will co-teach a 3-credit hour course on Agroterrorism as a part of the Masters of Public Administration program in the fall of 2010. The SC Ag-Watch Manual will be used as the textbook for the class.
- Hired a new Chemist I in the fertilizer lab. This addition will help **reduce the turn-around time for analysis of regulatory fertilizer samples** to assist the manufacturers and consumers of fertilizer in South Carolina.
- Acquired a new Leco Truspec Nitrogen Analyzer in the fertilizer lab. This new equipment will add speed, consistency, and accuracy to the analysis of regulatory fertilizer samples that contain nitrogen. The new equipment will benefit both the manufacturer and consumer of fertilizer in South Carolina.
- The Department of Pesticide Regulation (DPR) recently implemented an **on-line pesticide license examination** option, which provides greater flexibility and convenience in exam scheduling and test locations, and it is already a big hit with clients. About 45% of examinations are now taken on-line compared to only 7% last year. Cooperative examination centers are available at eight technical colleges across the state: Charleston, Columbia, Conway, Florence, Graniteville, Greenville, Greenwood, and Kingstree.
- DPR collected 224,240 pounds of used pesticide containers for recycling. This was an **increase of 15% over the previous year**. Since the beginning of the program in 1993, over 2.2 million pounds of pesticide containers have been recycled, helping to protect the environment from potential pesticide contamination.
- DPR hosted an eight-state southeast regional workshop entitled *Practical Kinesic Interview and Interrogation: Principles, Strategies, and Techniques* for state pesticide regulatory specialists. Funded by the EPA, this training improved the regulatory specialists' skills in interviewing individuals during the performance of their responsibilities involving pesticide use inspections and investigations.

## PSA INSTITUTES

[www.clemson.edu/public/about\\_us/overview.html#centers](http://www.clemson.edu/public/about_us/overview.html#centers)

There are six institutes under the PSA umbrella and selected achievements for 2008-09 are presented below in reverse alphabetical order.

- Youth Learning Institute
- Strom Thurmond Institute of Government and Public Affairs
- Institute on Family and Neighborhood Life
- Clemson Institute for Economic and Community Development
- Baruch Institute for Coastal Ecology and Forest Science

## Youth Learning Institute

[www.clemson.edu/yli/](http://www.clemson.edu/yli/)

A total of 31,077 participants attended educational and youth development programs at the Youth Learning Institute. These individuals spent 267,375 program days in YLI activities. This is a 5% increase in the number of participants from the previous year. The number of program days for each participant grew approximately 90%, due to the addition of significant school and community-based programs.

Total revenue for YLI programs from generated income, grants, and gifts was \$5,316,700. Although this was a 14% decrease from the prior year, participation in YLI programs remains strong at 647 groups, which is a drop of less than 1% from the prior year.

### Impact of programs:

The participants at the New Horizons Family Center are young mothers who are particularly at risk of not achieving education beyond high school. The program offers these young women the opportunity to complete high school or obtain a GED while in the program. In several cases these girls have gone on to post-secondary education. Currently, three girls are enrolled in degree programs at local universities, pursuing education beyond high school. The personal economic impact is substantial, as well as the indirect impact to the state in additional tax revenue, and reduced expense for support and assistance.

*The lifetime income of the average full-time worker with a bachelor's degree (from ages 22-65) is \$2.5 million, after subtracting the costs of higher education for the individual. During an average career, a full-time worker with bachelor's degree earns \$1.2 million more than a full-time worker with a high school diploma alone. Given the average total investment in a four-year education, the individual would gain 8.2 times that amount in incremental income over his or her lifetime. ("The Economic Return on Investment in South Carolina's Higher Education", 2009).*

### Significant Events:

- In 2009, the name and all rights to the **Zest Quest** program were gifted to Clemson by the Cliffs Communities, Inc. The Cliffs Communities and its foundations, led by founder and CEO Jim Anthony, also made a \$3 million pledge to support this program aimed at improving the health and wellness of school children across the Carolinas.
- Completed **major renovations to the facilities at the R.M. Cooper Leadership Center**, near Summerton, SC. The upgrades include the total replacement of a dormitory that was destroyed as a result of a micro-burst of wind during a severe thunderstorm. The new facility includes major upgrades to more efficient heating and cooling systems, as well as the addition of fire alarm systems and sprinklers.
- YLI partnered with Patrick McMillan, host of the internationally syndicated, ETV hit show, *Expeditions with Patrick McMillan*, to operate an array of outdoor education programs that expose children to the wonders of nature in SC and around the world. A new component of these programs is a curriculum developed by Patrick McMillan for the study of coastal ecosystems. This program,



**Expedition Sewee**, will be held at the Sewee Coastal Retreat Center in Awendaw, SC for the 2010 school year.

- YLI partnered with Clemson University's Department of Food Science and Human Nutrition to establish the **Center for Healthy Living**. The Center's mission is to help children, youth, families and individuals of all ages improve their health and well-being through research and education. The Center helps to ensure the effective collaboration of all health and wellness focused initiatives and resources managed by YLI. As a result of this collaboration, Clemson University was awarded a \$300,000 grant to design, develop, test and implement a new, web-based information and evaluation system for EFNEP programs nationwide.
- **Outreach efforts in Patagonia, Chile**, coordinated by YLI on behalf of Clemson, are serving youth and families through school and community-based initiatives focused on wellness and English as a Second Language (ESL).

### **Strom Thurmond Institute of Government and Public Affairs**

[www.strom.clemson.edu/](http://www.strom.clemson.edu/)

The Strom Thurmond Institute (STI) conducts applied research and service in public policy areas at the local, regional, state, and national levels. With an established record of collaborative partnerships with academic, governmental, and private sector scholars throughout the world, the Institute also enhances awareness of current public policy issues on the Clemson campus and throughout the state and region through formal and informal educational programs.

To further its public service mission, STI now offers two dynamic academic programs: the Master of Public Administration and the Doctorate in Policy Studies.

Accomplishments in 2009-10 include:

- STI's researcher was selected to serve as the 2011 President of the **National Institutes of Water Resources (NIWR)**, leading a group of 54 organizations.
- Presented the draft **Pickens County Water Supply Plan** for the Water Authority. This plan is intended to inform the Authority of ways they can better manage resources among the water purveyors in the county and improve forecasting.
- Businesses affiliated with the Institute's **comparative advantage partnerships** related to agriculture, renewable energy and local sustainability along the I-95 corridor launched more than a dozen new products and all had significant increased revenues for the 2009-10 fiscal year.
- Currently concluding the **Hartwell Lake Level Impact Study**, which is a joint project with SC Water Resources Center for the U.S. Army Corps of Engineers. A study of the economic and fiscal impacts of changing lake levels on counties bordering Lake Hartwell. Analysis includes impact on lake-adjacent property transactions and gross sales within selected industries.

- Contracted with **Duke Energy** to conduct similar lake level analyses on Lakes Keowee and Thurmond.
- Conducted research on South Carolina's **Recycling Industry Cluster Plan** to analyze the commodities and value chain components in order to recommend options for systematic development of the industry.
- Presented the final **IAM Laptop evaluation** (a program that introduces laptop technology into curriculum) to the House Education Subcommittee, the state K-12 committee and other interested parties, concluding a two-year project for six pilot schools.
- Conducted research comparing **residential property tax rates** across South Carolina, Georgia, Tennessee and North Carolina to be used with legislative committee work considering tax restructuring.
- Initiated an evaluation of the **SC Department of Juvenile Justice** for the Duke Endowment to analyze their efforts to decrease juvenile recidivism across the state.
- Partnered to house the **International Town Gown Association (ITGA)**, which is housed under the Self Center and will serve as a unique organization to meet the needs of college/university communities across the country.
- Contracted with private companies as well as public agencies to perform economic impact analyses using the Regional Dynamics model. Projects included:
  - Estimated tourist spending in Spartanburg County
  - Fiscal impact of commercial solar investment including tax credit incentive
  - Estimated economic impact of the Heritage Golf Tournament on Beaufort County
  - Estimated economic impact of the Greenwood Genetics Center
  - Analysis for the Clemson University Conference Center and Inn of local economic impact
  - Economic and fiscal impact of the Peace Center for the Performing Arts
- Facilitated and drafted a strategic plan for **Native Ground Cover** across four agencies (CU, USFS, USFWS, and NRCE) to increase production and use of native ground cover.
- Increased enrollment in the **MPA degree** by 50 percent, serving working professionals across the state and region.
- Created statewide partnership with **SC State Emergency Management Division** and with **State Law Enforcement Division (SLED)** to offer only MPA specializations in SC for Emergency Management.
- Initiated partnership with the Naval Postgraduate **School's Center for Defense and Homeland Security** to offer online graduate programs in Homeland Security and Defense.

## Institute on Family and Neighborhood Life

[www.clemson.edu/public/ifnl](http://www.clemson.edu/public/ifnl)

The Institute on Family and Neighborhood Life (IFNL) helps to generate, apply, and share the research foundation for youth, family, and community development. Work at IFNL begins with the premise that strong communities support strong families and vice versa, and that both are necessary for healthy development of children and youth.

- In FY 2010, through a competitively obtained federal Health and Human Services grant, the **“SC Rural Communities Compassion Project”** distributed \$240,000 to 14 rural faith and community-based organizations to build their capacity for providing services to children and families. To date, over \$2,200,000 has been distributed to 140 non-profit organizations across South Carolina.
- In FY 2010, faculty member Mark Small became one of eight national consultants of the USDA Child, Youth, and Families at Risk Program.
- In FY 2010, faculty and staff trained 177 trainers to assist schools in implementing the **Olweus Bullying Prevention Program**, for a total of more than 750 trainers nationwide. The Olweus Bullying Prevention Program was highlighted as a successful prevention program by the American Academy of Pediatrics in its Policy Statement on the Role of the Pediatrician in Youth Violence Prevention.
- The **Building Dreams** project is currently serving approximately 450 children of prisoners in mentoring relationships. Over the last five years, Building Dreams has served more than 850 youth in mentoring relationships. Nearly 900 volunteers have been recruited to work with eligible children and youth. Building Dreams is now the largest mentoring program in South Carolina.
- In FY 2010, volunteers in the **Café Cultura** project contributed more than 2,000 hours of service providing educational, socio-cultural, recreational and motivational activities for participating Hispanic families.

## Clemson Institute for Economic and Community Development

[www.clemson.edu/sandhill/](http://www.clemson.edu/sandhill/)

- **Rural Community Leadership Development:** Clemson Institute for Economic and Community Development (CIECD) professionals organized and conducted more than 30 youth and adult leadership programs throughout the state to provide participants with the leadership skills necessary for them to have a positive impact in their communities. Through these programs over **850 youth** and **500 adults** gained the knowledge and skills necessary to provide productive leadership in their community, region or state. Many also benefited through direct contact with and guidance by local, regional or state leaders who also participated as guest speakers and/or panelists. Builders of Tomorrow Program in Colleton County, Leadership Georgetown County, The South Carolina Women's Connection, and Senior Leadership in Beaufort County, Operation Military Kids, and Leadership SC are a few examples. The curriculums include team building, leadership, communication, service learning, significant

issues (education, public finance, environment and natural resources, etc.) and civic engagement. The impact of these programs are well demonstrated by the alumni's work on cultural councils, school reform, environmental issues, regional collaborative efforts, community development, government policy and state/county/local ordinances.

- **Rural Community Enhancement and Improvement:** CIECD conducted and participated in many community enhancement programs this year. Our major focus is to assist communities in identifying and developing sustainable economic development activities, programs and plans that improve the quality of life for all the citizenry. CIECD staff conducted strategic planning charrettes for the cities of Georgetown and Cayce. CIECD has continuing projects with Saluda, Bamberg, Denmark, Lake City, Colleton, Lower Richland, Gaffney, Georgetown, Myrtle Beach, Walterboro and McClellanville. CIECD facilitated projects associated with the Pee Dee Agritourism initiative in the ten-county Pee Dee Region. We assisted 115 small rural businesses in developing plans to establish or expand their services through the FastTrac® program. CIECD actively engages Clemson (and other) undergraduate and graduate students in as many community planning sessions and outreach programs as possible.
- **Rural Community Economic Development:** CIECD conducted statewide programs to enhance economic development through workforce analysis, business development strategies and policy formation, as well as surveys to enhance workforce preparedness and business retention efforts. Many of these efforts were centered on the agribusiness sector of state and local economies such as research to determine the impact of Agribusiness to local economies for Charleston, Clarendon, Florence, Williamsburg and Dillon Counties. We conducted research to assess the impact of a growing Hispanic population on the economy. Other studies included Feasibility analyses for a peanut shelling facility, a value-added peach processing facility and a muscadine juicing facility. Results and final reports were presented to the SC Farm Bureau, among others. CIECD also established the Catawba Regional Local Food Initiative to foster programs to sustain, grow and diversify the regional agribusiness economy through partnerships, planning, product development, professional development and promotion. We continue to manage the Sandhill REC Farmers Market as a case study research project. That Market continues to grow. During the 23 days the Sandhill Market was open (every Tuesday from May to November) the weekly averages were 25 local vendors and more than 1,200 community customers with total sales of more than \$250,000. The impact of these small community markets is significant, since the money stays in the local community thereby generating local jobs and income. CIECD non-agriculture related projects included conducting a "Payday Lending in the City of Walterboro" study which helped to facilitate a planning process to restrict the growth of payday lenders in Walterboro. We also conducted a Business Incubator Feasibility Study in Clinton. Economic Impact and Planning was conducted for the South Carolina National Guard providing analysis at the state, congressional district, and selected county levels. CIECD staff conducted 37 training sessions for public and private entities including state agencies, university departments and groups, non-profit organizations, municipal leaders, community organizations, and educational groups. CIECD staff directly assisted in the planning and writing of more than 50 grants on behalf of university faculty, local governments, non-profits, and community groups to submit to government agencies, private foundations, and corporate foundations for funding in excess of \$8.3 million. Of the grants written to date, \$3.1 million has been awarded.

## Baruch Institute for Coastal Ecology and Forest Science

[www.clemson.edu/baruch/](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 U.S. Environmental Protection Agency, 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 State Revolving Fund, Pee Dee Research and Education Endowment, Frances Bunnelle 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, SC Sea Grant, the College of Charleston, the University of South Carolina, N.C. State University, and Coastal Carolina University.
- National and international recognition increased as faculty were elected to hold offices in the South Carolina Aquatic Plant Management Society, the American Ecological Engineering Society, and the Society of Wetland Scientists; asked to serve on Board of Directors of East Coast Shellfish Growers Association, South Carolina Aquatic Plant Management Society, and Little Leaf Louisiana; invited to present seminars at National Taiwan University, Wuhan Botanical Garden of Chinese Academy of Sciences, and Lanzhou University; won the Godley-Snell Award for Excellence in Agricultural Research; and served as manuscript and proposal reviewers for a number of journals and agencies.
- Completed Five Year Beach Vitex Control Project - 236 coastal sites restored.
- Continued establishment of the Environmental Quality Lab with the addition of state of the art instrumentation for sediment particle size analyses and carbon analyses, along with existing nutrient and bacterial analyses and other field and lab equipment for the characterization of water, soil, and plant resources.
- Support for students included that for eight graduate students and six undergraduate students.
- For the integration of research and extension, a stormwater demonstration facility was completed as both a component of the new building and a pilot for the Intelligent River™ project.
- The development of an online mapping tool to aid decision makers in planning for coastal resource conservation has been piloted in Georgetown County. The Community Resource Inventory (CRI) project, sponsored by SC Sea Grant, has involved input from stakeholders from Georgetown and Horry Counties, the NOAA Coastal Services Center, SC Department of Natural Resources, SC DHEC-OCRM, the Nature Conservancy, the SC Forestry Commission, the Waccamaw Riverkeeper, the Coastal Conservation League, and the SC Environmental Law Project.

## 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**  
**Student performance**  
**Clemson's national reputation**

**Campus life**  
**Educational resources**

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**
- **Information and Communication Technology**
- **Family and Community Living**
- **Advanced Materials**
- **Automotive and Transportation Technology**
- **General Education**
- **Biotechnology and Biomedical Sciences**
- **Sustainable Environment**

### Central Strategy

In 2008 PSA units developed an update at Year Four to the PSA Five-Year Plan. PSA is in Year Five of this plan with the following central strategy.

1. To continue our core programs **discovering and delivering relevant new knowledge** in our five focus areas: agriculture, community, environment, food, and youth.
2. To **continue to follow our Five-Year Plan** to: 1) make the needed structural changes to PSA, 2) utilize web and mass media to more efficiently serve clients, 3) upgrade video conferencing and internet capability of off-campus sites and increase efficiency of computer and telephone use, 4) make personnel adjustments and develop extension program teams, and 5) reduce expenses and leverage funds to increase external support.

The revised five-year plan has specific program goals for each subunit of PSA, e.g., the Cooperative Extension Service has seven program teams. The Livestock and Forages Program Team will "improve the production, efficiency, environmental sensitivity and profitability of animal production systems and reduce the environmental impact of animal waste in South Carolina."

## 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: 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 challenge must be accomplished within the current economic climate, which includes the present situation of a 46% reduction in state funding since July 2008. These dramatic cuts have left us seriously understaffed in some of our core agricultural areas. There are still many unfilled positions that are vital to help the agribusiness cluster prepare for the future, attract new industries and research partners, and build the knowledge-based economy of South Carolina.

The remaining state funding is less than is necessary to support PSA's current staff. In past years of budget reductions our goal has been to minimize the effect of those reductions on services to our clients. While that is still PSA's desire, the 46% reduction in PSA's budget will affect what services we offer and how quickly we are able to respond to growers' needs. The funding reduction is more than a challenge. It is a plan-changing mandate to become more entrepreneurial, reduce operating expenses, and make difficult decisions regarding the best use of the funding that remains. These new strategies and decisions are maximizing the return on the investment of state dollars for our clients. They center on continuing to provide relevant, research-based information to the state's agriculture and natural resources industries but with less personnel and fewer resources.

Key indicators of success are measured through the annual research grant proposal submissions, sponsored research awards, the number of participants in extension training programs, and other specific unit performance measures described in Section III-1-5 and Agency Action Plans in the Strategic Planning Chart Section III-2-7.

## **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 further the following:

- **Activity planning** – encouraging units across PSA to review this report initiates collaboration, new research projects, and new service concepts.
- **Personnel planning** – as positions become available through retirements or resignations, new hires can be targeted to areas of greatest impact across the state based on annual performance of a unit.
- **Financial planning** – use of annual assessment correlates funding with results so that funds are distributed to areas of greatest potential statewide impact.

### 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, organizations 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**
- **The Institutes of PSA:**
  - Baruch Institute for Coastal Ecology and Forest Science
  - Clemson Institute for Economic and Community Development
  - Institute on Family and Neighborhood Life
  - Strom Thurmond Institute of Government and Public Affairs
  - Youth Learning Institute

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**
- **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**
- **Agricultural community, including industry and related associations**
- **Advisory boards**

### **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**
- **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 can best be used to solve those specific problems faced by our stakeholders in the surrounding area. Following 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 S. C. 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



Figure II-1

## II-6 Number of Employees

As of September 2010, PSA had 651 employees in 513 FTE's. Of these employees, 50 FTE positions are funded from grant funds.

Type	Headcount	FTE
Classified	341	277
Unclassified	310	236
<b>Total</b>	<b>651</b>	<b>513</b>

## **II-7 Regulatory Environment Under Which Your Organization Operates**

General information regarding establishment of Clemson University/PSA is presented below as well as 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.

### **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/](http://www.csrees.usda.gov/)

**Morrill Act 1862** [www.csrees.usda.gov/about/offices/legis/morrill.html](http://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](http://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](http://www.csrees.usda.gov/about/offices/legis/pdfs/smithlev.pdf)

SEC. 1. <sup>(1)</sup> In order to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture, <sup>(2)</sup> home economics, and rural energy, <sup>(3)</sup> 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

**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 to 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](#).

### **Regulatory and Public Service Programs - Agricultural Service Laboratory (ASL) and Plant Problem Clinic (PPC):**

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. PPC analyses and reports plant pest identification to growers, homeowners, and other interested persons to determine appropriate control measures. Authority to provide these services is derived from Section 46-7 of the South Carolina Code of Laws.

### **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.

## **II-8 Performance Improvement System(s)**

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

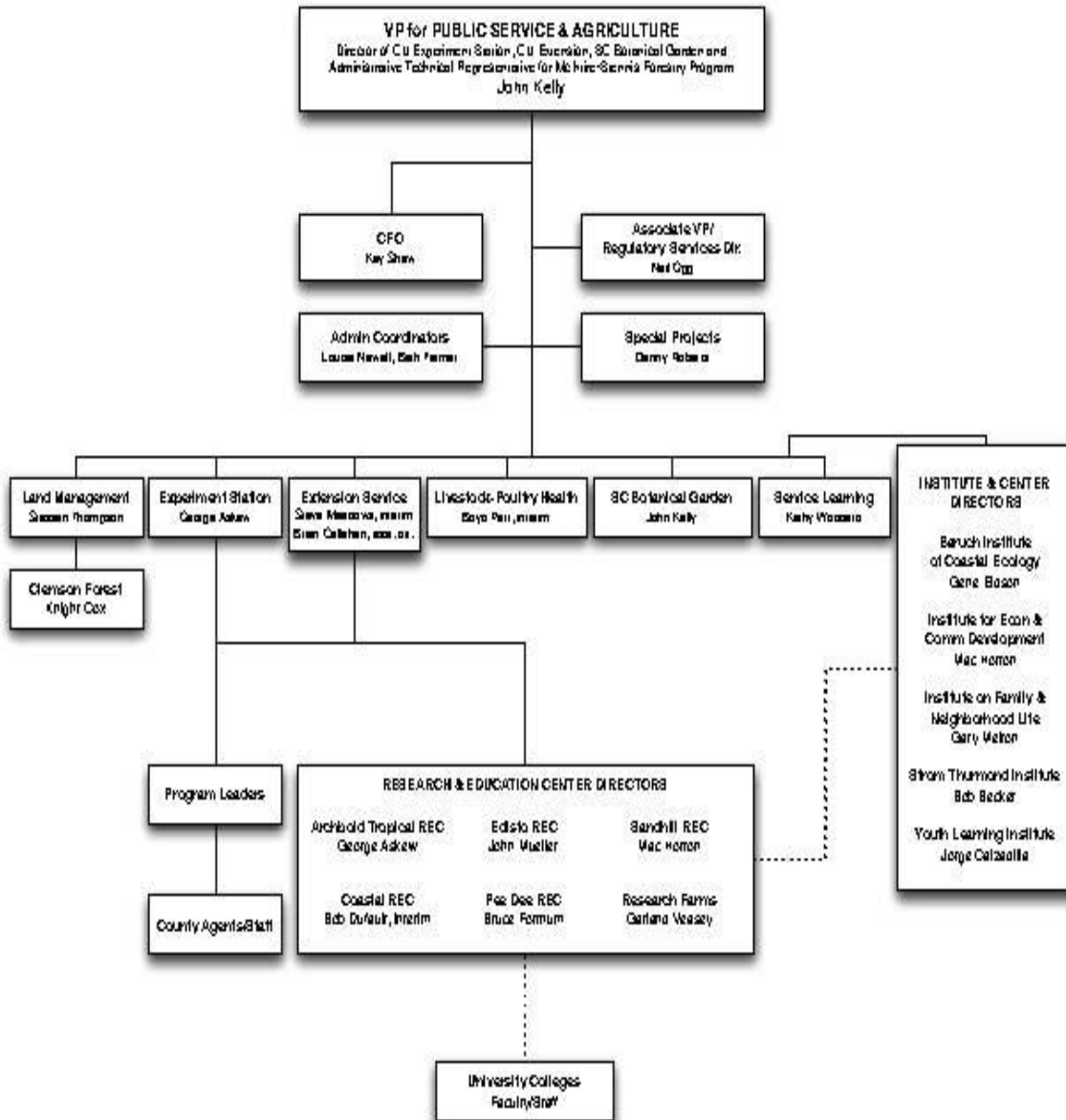
**Employee Performance:** Primary among these processes is the University's Employee Performance Management System (EPMS), which reviews the personal performance of classified employees. Similar to this process is the Faculty Activity System, which allows the faculty to report their plans for the coming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

**Unit Performance:** This year the WEAVEonline® university-wide assessment database was 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 U.S. 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



Last Modified: 08/20/2010

## II-10 Expenditure/Appropriations Chart

### Accountability Report Appropriations/Expenditures Chart

#### Base Budget Expenditures and Appropriations

Major Budget Categories	FY 08-09 Actual Expenditures		FY 09-10 Actual Expenditures		FY 10-11 Appropriations Act	
	Total Funds	General Funds	Total Funds	General Funds	Total Funds	General Funds
Personal Service	\$44,281,253	\$ 24,887,309	\$ 41,055,908	\$ 21,832,901	\$ 34,681,317	\$20,652,080
Other Operating	\$22,729,024	\$ 6,705,975	\$ 18,399,107	\$ 5,931,761	\$ 15,852,342	\$ 203,706
Special Items						
Permanent Improvements						
Case Services						
Distributions to Subdivisions						
Fringe Benefits	\$14,710,722	\$ 9,083,836	\$ 14,229,777	\$ 7,100,051	\$ 12,286,845	\$ 7,358,803
Non-recurring						
<b>Total</b>	<b>\$81,720,999</b>	<b>\$ 40,677,120</b>	<b>\$ 73,684,792</b>	<b>\$ 34,864,713</b>	<b>\$ 62,820,504</b>	<b>\$28,214,589</b>

#### Other Expenditures

Sources of Funds	FY 08-09 Actual Expenditures	FY 09-10 Actual Expenditures
Supplemental Bills	\$ 275,000	\$ 285,000
Capital Reserve Funds		
Bonds		



## II-11 Major Program Areas Chart

### Major Program Areas

Program Number and Title	Major Program Area Purpose (Brief)	FY 08-09 Budget Expenditures	FY 09-10 Budget Expenditures	Key Cross References for Financial Results*
I.	Regulatory Services	<b>State:</b> 1,364,844.00 <b>Federal:</b> 894,246.00 <b>Other:</b> 3,038,900.00 <b>Total:</b> 5,297,990.00 <b>% of Total Budget:</b> 6%	<b>State:</b> 1,313,100.00 <b>Federal:</b> 945,320.00 <b>Other:</b> 3,254,062.00 <b>Total:</b> 5,512,482.00 <b>% of Total Budget:</b> 7%	
II.	Livestock Poultry Health	<b>State:</b> 2,788,041.00 <b>Federal:</b> 2,444,502.00 <b>Other:</b> 1,555,540.00 <b>Total:</b> 6,788,083.00 <b>% of Total Budget:</b> 8%	<b>State:</b> 2,621,316.00 <b>Federal:</b> 2,401,645.00 <b>Other:</b> 574,192.00 <b>Total:</b> 5,597,153.00 <b>% of Total Budget:</b> 8%	
III.	Agricultural Research	<b>State:</b> 18,089,493.00 <b>Federal:</b> 4,060,728.71 <b>Other:</b> 6,082,077.00 <b>Total:</b> 28,232,298.71 <b>% of Total Budget:</b> 35%	<b>State:</b> 15,191,839.00 <b>Federal:</b> 5,033,049.00 <b>Other:</b> 4,598,911.00 <b>Total:</b> 24,823,799.00 <b>% of Total Budget:</b> 34%	
IV.	Cooperative Extension	<b>State:</b> 18,434,742.00 <b>Federal:</b> 8,436,069.00 <b>Other:</b> 14,481,075.00 <b>Total:</b> 41,351,886.00 <b>% of Total Budget:</b> 50%	<b>State:</b> 15,729,161.00 <b>Federal:</b> 8,736,089.00 <b>Other:</b> 13,276,812.00 <b>Total:</b> 37,742,062.00 <b>% of Total Budget:</b> 51%	

Below: List any programs not included above and show the remainder of expenditures by source of funds.

<b>Remainder of Expenditures:</b>	<b>State:</b>	<b>State:</b>
	<b>Federal:</b>	<b>Federal:</b>
	<b>Other:</b>	<b>Other:</b>
	<b>Total:</b>	<b>Total:</b>
	<b>% of Total Budget:</b>	<b>% of Total Budget:</b>

\* 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.

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## Section III – Elements of Malcolm Baldrige Award Criteria

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### 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, our organization is focused to provide research and outreach in PSA's five areas of service.

#### ◆ *1. Leader communication*

Vice President John Kelly has established a reputation for encouraging open communication within and across PSA units. The PSA Cabinet is only one formal communication mechanism, meeting to share initiatives and results of projects. The Cabinet is responsible for implementing programs and initiatives aligned with the PSA focus areas. The Cabinet consists of the following key leaders:

- VP for PSA
- Associate VP for PSA
- Directors of Research and Education Centers
- Directors of Institutes
- Chief Operating Officer, Exp.Station
- Chief Operating Officer, Ext. Service
- Director, Livestock-Poultry Health
- Director, Public Relations, PSA
- Assist. Director Ext. Field Operations
- Associate Deans
- Ext. Program Team Leaders
- Assistants to VP for PSA
- PSA Chief Financial Officer
- Dean, College of Agriculture, Forestry and Life Sciences

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, 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. Periodically, the University's Internal Auditing Office undertakes spot audits of 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. By unit, they include the following:

- Clemson Cooperative Extension Service
  - Number of client interactions
  - Programs offered and participation frequency
  - Acres of SC farm and forest land affected by programs
  - Volunteer hours and contributions
- Clemson Experiment Station
  - Number of proposals processed
  - Amount of grant awards
  - Number of disclosures (official announcement of potential invention)
  - Number of patent applications and 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 and Inspection Service standards

- Regulatory Services
  - Number of phytosanitary certificates issued and accepted without problem
  - Pesticide inspections for safe use
  - Number of Pesticide Applicator Licenses issued
  - Nutrient deficiency rate of fertilizer samples
  - Percentage of Certified Seed Lots meeting standards
  
- Institutes
  - Number of grant proposal and awards
  - Number of publications, both research and policy oriented
  - Other noteworthy accomplishments in Section I-2

◆ **6. Performance review and employee feedback**

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

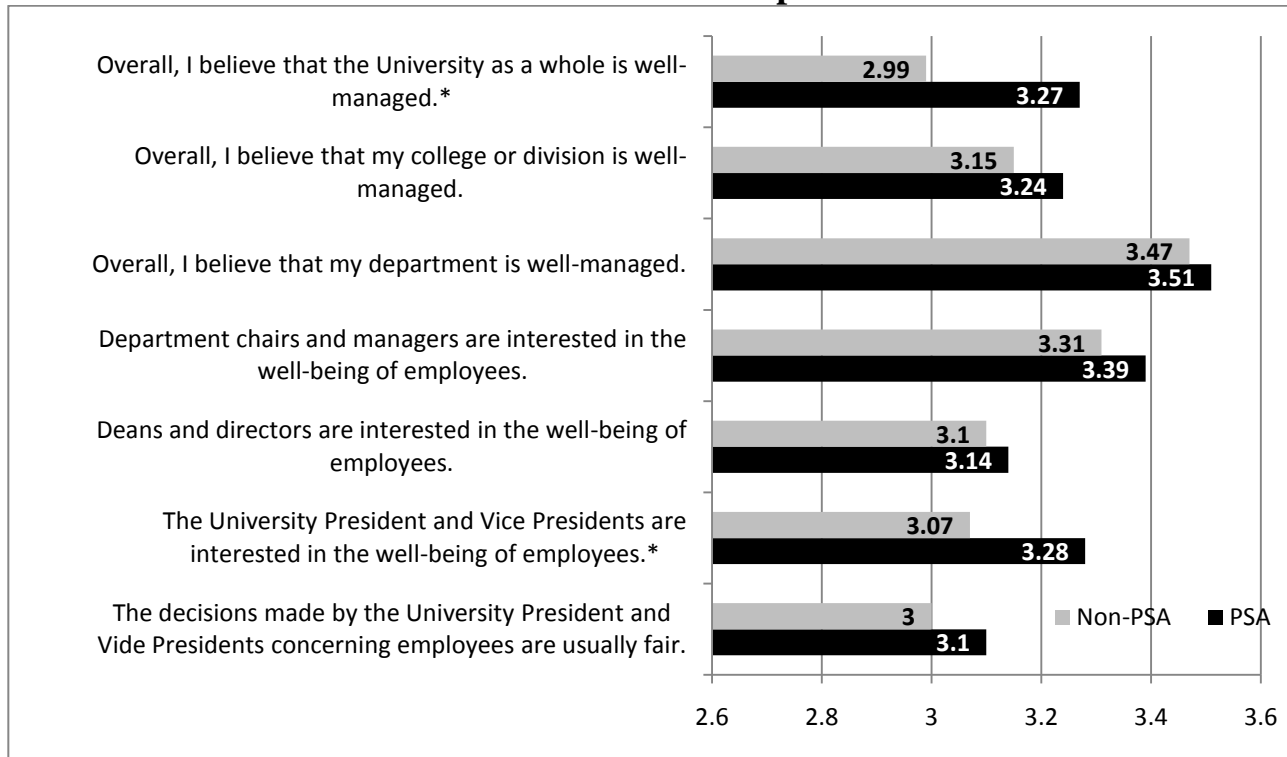
Faculty and staff have always exercised their privilege to have an open dialogue with the administration. The most powerful use of the policy has been their collective strength through the Faculty and Staff Senate organizations. These organizations represent their respective area in all concerns ranging 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 were not separately identified.

**Performance Management**



## Leadership



*\*PSA Personnel response scores significantly higher than other University personnel*

### ◆ 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. Clemson University's Office of Human Relations also has an Employee Relations Mentoring Program.
- A **succession plan** was developed in 2005 and updated in 2009.

### ◆ 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 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.

◆ **10. Engaging, empowering, and motivating the workforce**

The office of the 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/](http://www.clemson.edu/public/)) with stories that highlight the activities of personnel from across the state.
- **Impacts** – the PSA newsletter is published three times per year and contains communication from the Vice President as well as informative articles that highlight accomplishments in each of PSA’s units ([www.clemson.edu/public/impacts/](http://www.clemson.edu/public/impacts/)).
- **Radio** – The “Your Day” program has aired on public radio for nine years and broadcasts interviews with local, state, and national experts on a variety of issues affecting South Carolinians ([yourday.clemson.edu/](http://yourday.clemson.edu/)).
- **PSA Conference** – The 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 was cancelled for 2009-10.

Due to budgetary constraints PSA directors and supervisors currently have limited flexibility in rewarding employees with merit salary increases. 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 Vice 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  
State Extension Advisory Committee  
Education and Economic Development Act  
SC Association of Counties  
SC Farm Bureau Federation  
Shoreline Policies Advisory Committee  
Ocean Planning Task Force  
SC Department of Education Task Force on Revenue  
and Funding

United Way of the Midlands Early Childhood  
Council  
Southern Association of Agricultural Scientists  
SC Forestry Association  
SC Biotechnology Alliance  
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 retreats and administrative council 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 Cabinet. 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.

To accomplish our strategic challenge within the worst economic slump since the great depression (Willis, 2009: [www.bloomberg.com/apps/news?pid=20601110&sid=aJEEqW5QmJLg](http://www.bloomberg.com/apps/news?pid=20601110&sid=aJEEqW5QmJLg)) we continued our review of every program in PSA, making appropriate changes in light of 1) the 46% reduction (\$24.2 million) in state funding, 2) the state's needs, 3) the projected economic climate, and 4) the quest to minimize as much as possible the loss of services provided to our clients.

This year's strategy to deal with yet another unprecedented budget reduction was to offer retirement incentives. The result was the loss of 115 people and a savings of \$5.7 million across PSA and colleges where PSA funds personnel. We are working now to develop plans to cover critical personnel needs, as well as identify ways to address the \$1 million shortfall.

### ◆ 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 U.S. 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, 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.

- **Public Service Cabinet** – Section III-1.1 details the members of the Cabinet who are assigned portions of the annual plan appropriate to their units.
- **Presentations** – To increase efficiency, presentations are made across the PSA locations via video conference; additional presentations are made in person as schedules 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 unit heads then report to the senior leadership on the achievement of unit-specific assignments and, as with individuals, evaluation of progress is made on each objective.

Finally, the Vice President's office reports on PSA's achievements to the University Administrative Council.

#### ◆ **6. Evaluating and improving the strategic planning process**

The 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/](http://www.clemson.edu/public/) and in Vice President John Kelly's letters in *Impacts* newsletter.



◆ *Strategic Planning Chart*

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

Program Number and Title	Supported Agency Strategic Planning Goal/Objective	Related FY 09-10 Key Agency Action Plan/Initiative and Timeline	Key Cross References for Performance Measures*
<p>I. Agricultural Research (Experiment Station)</p>	<p>Advance the competitiveness of the agriculture and forestry industry</p> <p>Enhance the economic potential of rural communities</p> <p>Safeguard the food supply</p> <p>Preserve natural resources</p> <p>Prepare young people to become productive citizens.</p>	<ol style="list-style-type: none"> <li>1. <b>Sustainable Animal Production Systems</b> – Conduct research to improve the health and productivity of livestock and poultry in SC Increase the number of technical papers and presentations. Focus on transferring technology in emerging areas such as forage-fed beef.</li> <li>2. <b>Sustainable Horticultural Crop Systems</b> – Improve the productivity and profitability in the horticultural crops, fruits, vegetables, turfgrass and ornamentals. Increase the number of technical papers and presentations. Focus on transferring technology in emerging areas such as pest management and genetically modified crops.</li> <li>3. <b>Sustainable Agronomic Crop Systems</b> – Improve the productivity and profitability in all the major agronomic crops, soybeans, grains, and cotton. Increase the number of technical papers and presentations. Focus on transferring technology in emerging areas such as peanut production, pest management, and genetically modified crops.</li> <li>4. <b>Agricultural Biotechnology</b> – Utilize molecular technology to address issues of practical importance to agriculture. Increase the number of technical papers and presentations. Focus on transferring technology in emerging areas such as animal and plant production systems.</li> <li>5. <b>Community, Leadership, and Economic Development</b> – Conduct research to enhance economic opportunities and improve the quality of life for South Carolinians. Assess local labor markets and quantify spatial dynamics. Evaluate opportunities and threats to rural markets.</li> <li>6. <b>Forestry and Natural Resources</b> – 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 and their relationship to urban land use properties on lawns and golf courses.</li> <li>7. <b>Food Safety, Nutrition and Human Health</b> -- Develop nanotechnology applications for food safety and 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 and presentations.</li> <li>8. <b>Water Quality and Quantity</b> - Conduct research programs focused on developing strategies for economically viable land use to coexist with good water quality, and identifying wetland and watershed management practices to improve water quality and wetland and aquatic wildlife habitat. Increase the number of technical papers and presentations.</li> </ol>	<p>7.0, 7.1</p>

<p style="text-align: center;">II Cooperative Extension</p>	<p>Advance the competitiveness of the agriculture and forestry industry</p> <p>Enhance the economic potential of rural communities</p> <p>Safeguard the food supply</p> <p>Preserve natural resources</p> <p>Prepare young people to become productive citizens.</p>	<ol style="list-style-type: none"> <li>1. <b>Sustainable Management of Forest Resources and Forest Systems</b> - At least 80% of the foresters and landowners will report a gain in knowledge as a result of participating in sustainable forest and natural resource programs by the end of the fiscal year.</li> <li>2. <b>Sustainable Horticultural Crop Production</b> – At least 80% of the persons completing sustainable horticultural programs will report a gain in knowledge and skills by the end of the fiscal year.</li> <li>3. <b>Sustainable Agronomic Crop Production</b> – At least 80% of the persons completing sustainable agronomic programs will report a gain in knowledge and skills by the end of the fiscal year.</li> <li>4. <b>Livestock and Forages</b> – At least 80% of the persons completing livestock and forages programs will report a gain in knowledge and skills by the end of the fiscal year.</li> <li>5. <b>4-H, Youth Development and Families</b> – 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.</li> <li>6. <b>Volunteer Development</b> - At least 500 volunteers will be trained and will conduct programs, serve on boards, committees, county organizations, and in cooperative relationships to establish, revitalize, improve, and/or expand the scope of youth and families programming efforts by the end of the fiscal year.</li> <li>7. <b>Food Safety and Nutrition</b> – At least 70% of the people completing food safety and nutrition programs will report a gain in knowledge by the end of the fiscal year.</li> <li>8. <b>Economic and Community Development</b> – At least 80% of the participants who complete Community, Leadership and Economic Development (CLED) programs will report knowledge gained by the end of the fiscal year.</li> </ol>	<p style="text-align: center;">7.0, 7.2</p>
<p style="text-align: center;">III. Livestock- Poultry Health</p>	<p>Advance the competitiveness of the agriculture and forestry industry</p> <p>Enhance the economic potential of rural communities</p> <p>Safeguard the food supply</p> <p>Preserve natural resources</p>	<ol style="list-style-type: none"> <li>1. <b>Animal Health Programs</b> – Protect animal and public health through control of endemic, foreign, and emerging diseases; enforce state and federal animal health laws and regulations by monitoring interstate movement of animals and inspecting livestock auction markets; expand traceability system designed to enhance animal disease control, surveillance, and eradication programs.</li> <li>2. <b>Meat/Poultry Inspection Program</b> - Regulate 100 small meat/poultry plants; protect the health of consumers by providing a comprehensive inspection service to ensure that meat and poultry products are safe, wholesome and accurately labeled.</li> <li>3. <b>Veterinary Laboratory</b> - Provide accurate and timely veterinary diagnostic and surveillance testing for early detection of disease, thus improving the response activities and mitigating economic losses; maintain AAVLD full accreditation for 2009-2010; meet NVSL</li> </ol>	<p style="text-align: center;">7.0, 7.3</p>

		accreditation standards and criteria for technicians to be proficiency certified.	
IV. Regulatory Services	<p>Advance the competitiveness of the agriculture and forestry industry</p> <p>Enhance the economic potential of rural communities</p> <p>Preserve natural resources</p>	<ol style="list-style-type: none"> <li>1. <b>Regulation of Structural and Ornamental Pesticide Applications</b> – Ensure the safe and legal use of pesticides by the structural and turf/ornamental pest control industries.</li> <li>2. <b>Pesticide Regulation</b> - Monitor the use of pesticides in South Carolina to ensure their safe and effective use and prevent harm to humans, plants, animals, and the environment.</li> <li>3. <b>Fertilizer Regulation</b> – Ensure the quality of fertilizer, lime, and soil amendments distributed to end users in SC by verifying that they meet label guarantees and are free of contaminants.</li> <li>4. <b>Plant Pest Regulation</b> - Prevent and control introduced plant pests/invasive species and pests of honeybees and certify freedom from plant pests for the nursery, greenhouse, and transplant industries.</li> <li>5. <b>Plant Diagnostics</b> –Analyze samples for plant pests and diseases and provide results and recommendations to clients.</li> <li>6. <b>Seed and Organic Certification</b> – Apply official quality and purity standards in the certification of eligible seeds and plants produced in SC Provide USDA –NOP accredited certification services for organic producers, processors, and handlers who seek certification through our agency.</li> </ol>	7.0, 7.4

### III-3 Customer Focus

#### ◆1. Key customers and stakeholders

More than 421,000 contacts were made by PSA units in 2009-10, which 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.

Four indicators (benchmarks) were identified to assess the quality and satisfaction of services provided: 1) up-to-date, useful, relevant, and easy to understand information, 2) the extent to which recipients had the opportunity to use the information, 3) the extent to which they have shared the information with others, and 4) the extent to which they are satisfied with the services provided.

### ◆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 compliance, and adherence to state hiring practices.

#### **◆2. *Using data/information in decision-making***

The PSA Office of Accountability works in coordination with the 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 Cabinet.
- Financial reports are merged with the assessment data upon request by the Chief Financial Officer for the directors and the PSA Cabinet.

#### **◆3. *Key measures***

Key measures have been identified in Section III-1 and on the Strategic Planning Chart. The PSA Cabinet 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. 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 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.

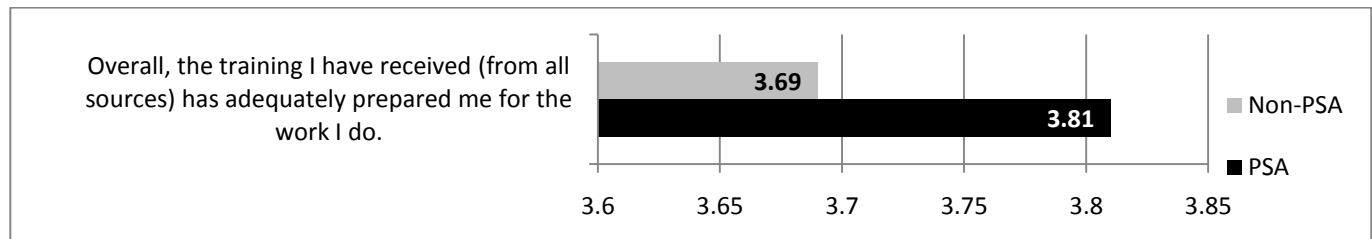
Retention of exceptional employees is of paramount importance to PSA leadership, who recognize the time, effort, and funds required to bring in new personnel. Efforts are made with staff to offer non-monetary benefits that interest employees, such as flex-time, professional development opportunities,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

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.

#### ◆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](http://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, regularly 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.

◆ **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.

#### ◆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 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***

Surveys have been the most reliable process to evaluate how well we are meeting the needs of our customers. Our Extension Service uses exit surveys 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 these 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.

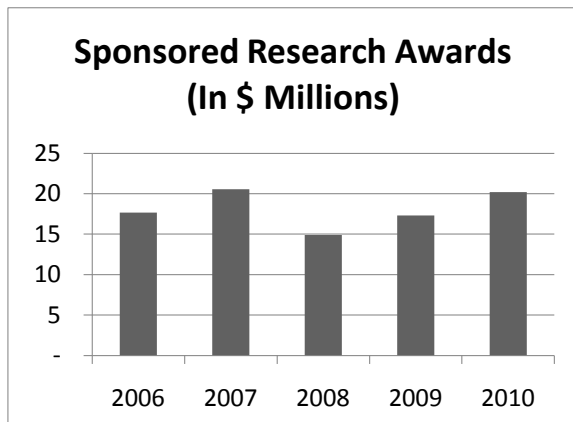
## **III-7 Business Results**

### **7.0 PSA Faculty Productivity Measures**

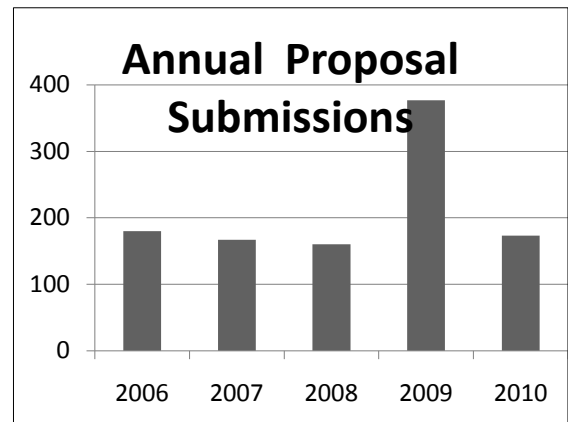
As a leading land-grant public research institution, Clemson University highlights its federal grant activities. Sponsored research awards is a measure of faculty competitive grant funding activity. The data is cyclical in nature due to long-term funding periods, usually two to five years in length, 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



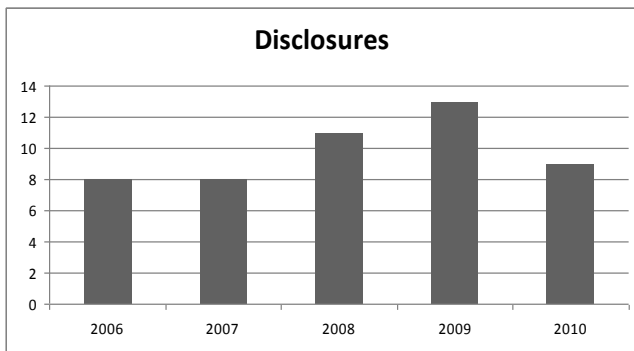
7.0-2 Annual Grant Proposal Submissions



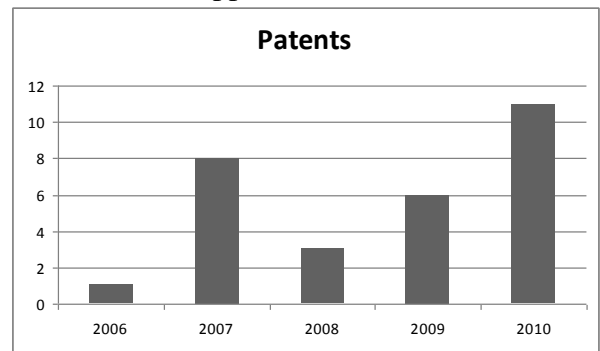
### 7.1 Agricultural Research (Experiment Station)

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 are successful in inventing products as shown in the following graphs.

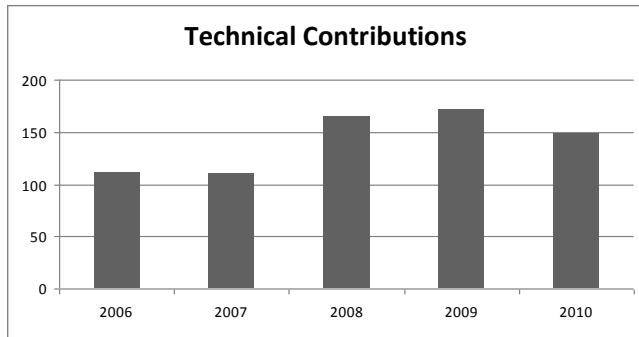
7.1-1 Patent Disclosures



7.1-2 Patent Applications Submitted



### 7.1-3 Technical Contributions by Experiment Station Faculty

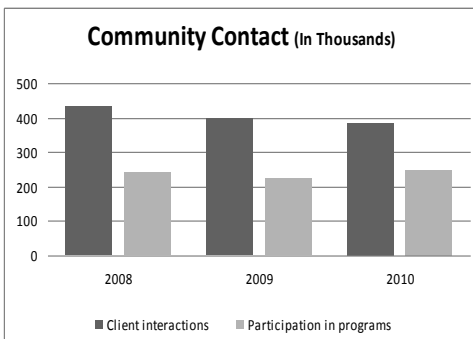


## 7.2 Cooperative Extension

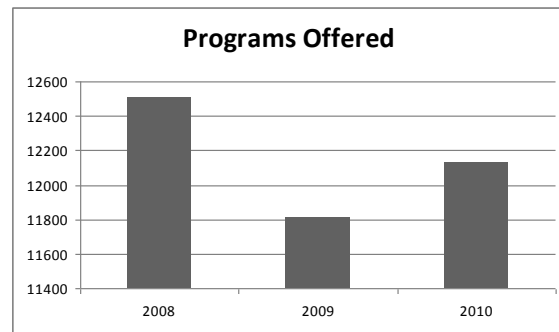
### *General*

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 Number of Community Contacts



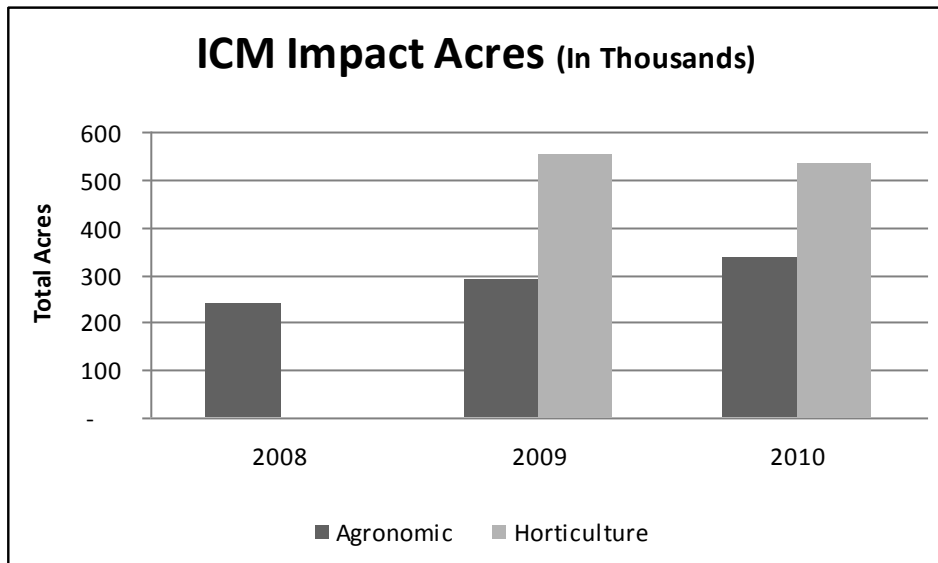
#### 7.2-2 Number of Programs Offered



### *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.

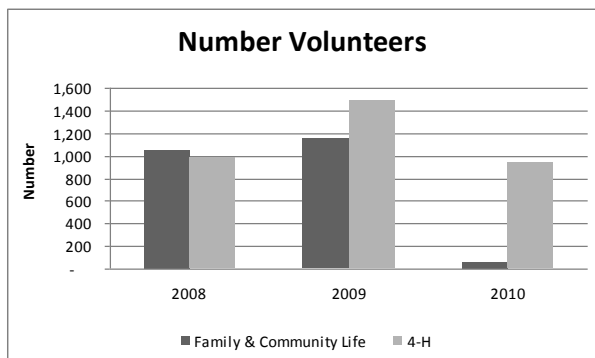
### 7.2-3 Acres of Impacted by ICM



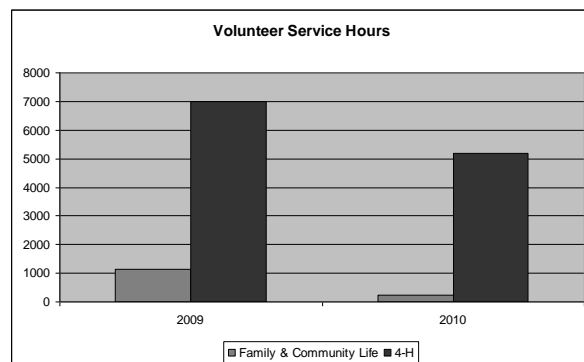
### Volunteer Programs

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: Gardeners, Naturalist, Tree Farmer, Wildlifer, Carolina Clear, 4-H, EFNEP and Family and Community Life. The total value of these service hours in 2009-10 is estimated at more than \$1,183,100.

### 7.2-4 Number of Volunteers



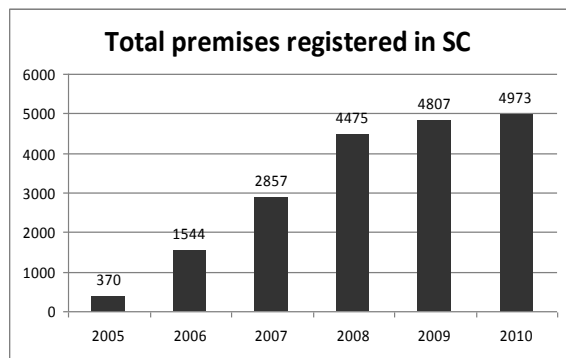
### 7.2-5 Total Volunteer Service Hours



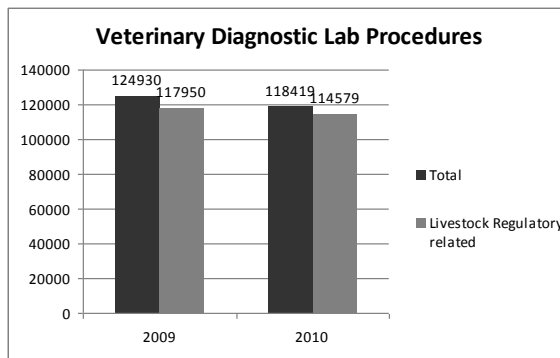
## 7.3 Livestock-Poultry Health

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 2009-2010 the total number of registered sites in South Carolina was 4,973.

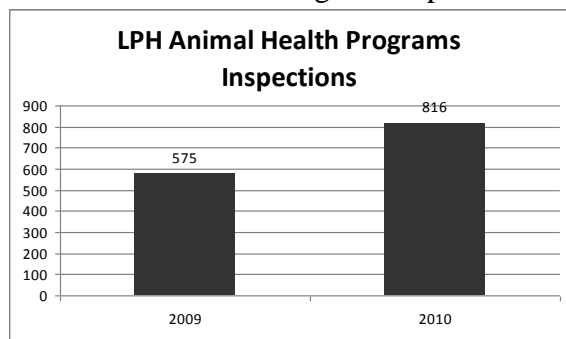
### 7.3-1 Number of SC Premises Registered



### 7.3-2 Diagnostic Lab Procedures



### 7.3-3 Animal Health Program Inspections



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.

### 7.3-4 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

## 7.4 Regulatory Services

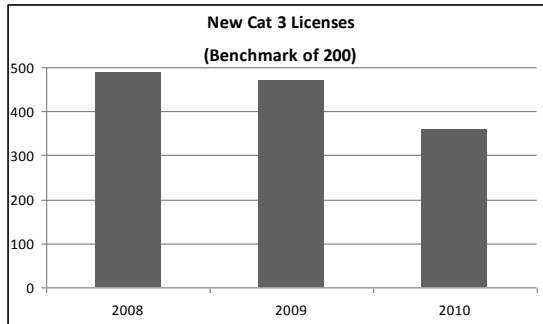
Regulatory Services serves the citizens of South Carolina by protecting our state from invasive plant and insect species, ensuring the safe and effective use of pesticides and fertilizers, providing soil and plant analysis and recommendations, conducting seed and organic certification services and safeguarding our state from potential acts of agroterrorism.

### *Pesticide Regulation*

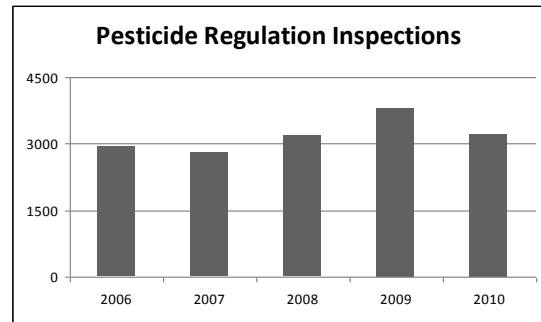
The Department of Pesticide Regulation is the enforcement and investigative authority in South Carolina for pesticide use, and works to protect health, property, and our environment by promoting the safe and proper use of pesticides. The department is significantly increasing the number of newly licensed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

The Department of Pesticide Regulation conducted 3,215 inspections this year to ensure the safe and effective use of pesticides and to prevent harm to the communities and the environment.

#### 7.4-1 New Turf and Ornamental Pesticide Licenses Issued



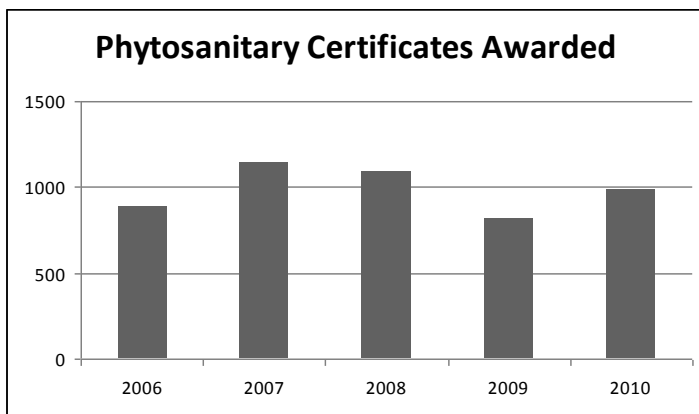
#### 7.4-2 Pesticide Regulation Inspections



#### *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. The department has maintained a 100% acceptance rate for all shipments for which phytosanitary certificates were issued, reflecting the accuracy and effectiveness of inspections. The following graph shows the number of phytosanitary certificates awarded. These certifications facilitate the movement of plant products from SC to other states and countries for the benefit of SC producers.

#### 7.4-3 Phytosanitary Certificates Awarded

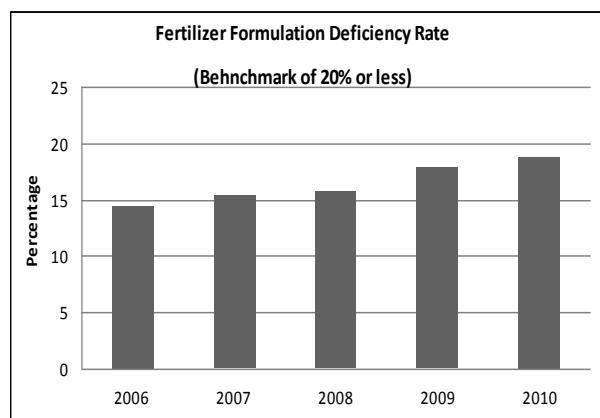


#### *Fertilizer Inspection and Seed Certification*

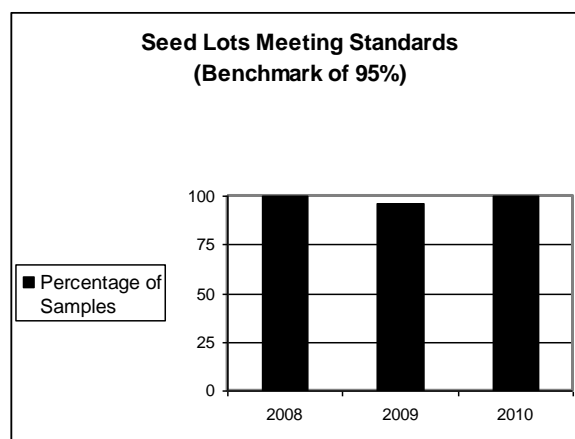
One of the primary inputs for production agriculture is essential plant nutrients or fertilizer. Growers who buy fertilizers that are deficient in nutrients pay for product they do not receive and crop production is reduced as a consequence. This program ensures that fertilizers meet labeled guarantees.

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 provide a measure of seed quality and program effectiveness. Seed certification ensures that producers receive the quality of seed that they expect.

7.4-5 Fertilizer Formulation Deficiency Rate



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



## References

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