PUBLIC SERVICE AND AGRICULTURE

FY 2024-25 BUDGET HEARING

January 17, 2024

PUBLIC SERVICE AND AGRICULTURE

Clemson University PSA Attendees

Dr. Greg Yarrow
Interim Dean, College of Agriculture, Forestry & Life Sciences

Angie Leidinger
Senior Vice President for External Affairs

Jarrod Bruder
Assistant Vice President for Governmental Affairs

Mark Cothran
Associate Vice President for Governmental Affairs

Dr. Kathy Coleman
Director of Sandhill REC

Dr. George Askew
Special Advisor to the Provost

PUBLIC SERVICE AND AGRICULTURE

Agency Information

Clemson Public Service Activities (PSA) is part of a national network of land-grant universities that work in concert with the USDA National Institute of Food and Agriculture. Clemson PSA has state and federal mandates to conduct research, extension and regulatory programs that support economic growth in South Carolina's largest industry – agriculture and forestry, or agribusiness. Clemson PSA is made up of four interrelated units: Experiment Station, Cooperative Extension Service, Livestock-Poultry Health, and Regulatory Services. The overall mission of PSA is to conduct research, extension (knowledge transfer) and regulatory programs that:

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

PUBLIC SERVICE AND AGRICULTURE

FY24-25 State Budget Requests

PUBLIC SERVICE AND AGRICULTURE

RECURRING REQUESTS

Poultry Science Facility Support	$ 525,000	3 FTEs
PSA Statewide Operational & Programmatic Support	$ 3,600,000	14 FTEs
Problematic Wildlife	$ 1,750,000	16 FTEs
Small Fruit Research & Extension	$ 525,000	2 FTEs

NONRECURRING REQUESTS

PSA Renovation, Repair, Equipment	$ 12,710,000
Baruch Institute Research Facility	$ 9,000,000

PUBLIC SERVICE AND AGRICULTURE

FTE Information

FTE Summary

	State	Federal	Other	Total
Authorized	594.53	219.87	119.35	933.75
Vacant*	73.83	22.09	18.08	114.00
Filled*	520.70	197.78	101.27	819.75

* Clemson University PSA FTEs are combined with Clemson University E&G FTEs in the State HR system. PSA takes credit for vacants within PSA Departments or PSA funded positions within the College of Agriculture, Forestry and Life Sciences. The PSA vacancy rate is 12.2% of authorized FTEs. Of those 114 vacant positions, 44.75 are in active recruitment.

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Wrap Up

CLEMSON PSA PRINCIPLE: *Ensure efficient use of our resources and the delivery of relevant programs of the highest quality to the people of South Carolina.*

To maintain this principle in our Budget Process, we:

1. Listen to constituents and citizens of South Carolina to identify
   - Existing program areas in need of improvement;
   - Emerging and relevant areas for research, Extension programming, and regulatory activities.
2. Respond to constituent and citizen input by
   - Implementing strategic changes within our existing personnel and budget to address program areas in need of improvement;
   - Developing annual budget requests to address expertise and infrastructure needs that cannot be met within our current staffing and program support.

PUBLIC SERVICE AND AGRICULTURE

THANK YOU!

Greg Yarrow
Interim Dean, College of Agriculture, Forestry & Life Sciences

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APPENDIX

Financial Update

Budget vs Actuals FY23 and FY24YTD

Program	FY23 State Budget (Includes Bonus)	FY23 Actual	FY24 State Budget (Includes $1M One Time Operating)	FY24 YTD 11-30-23
I. Regulatory and Public Services	$ 1,439,135	$ 1,489,748	$ 1,673,376	$ 545,628
II. Livestock Poultry Health	$ 3,648,145	$ 3,933,747	$ 4,292,291	$ 1,421,444
III. Agricultural Research	$ 17,101,915	$18,157,602	$ 18,287,503	$ 6,780,260
IV. Cooperative Extension Service	$ 18,235,856	$19,853,094	$ 20,274,326	$ 6,212,928
V. Employee Benefits	$ 16,323,537	$13,314,397	$ 18,486,646	$ 5,101,942
Total	$ 56,748,588	$56,748,588	$ 63,014,142	$ 20,062,202

PUBLIC SERVICE AND AGRICULTURE

Carryforward Information

Clemson University Public Service Activities' Other Funds consists of revenue from sales and services, and facilities and administrative costs recovered from grants. The balance on June 30, 2023 was $26,772,608.

The carryforward balance is maintained to support needs across the four divisions of PSA primarily for emergency maintenance of PSA owned facilities and to support the continuation of self-sustaining PSA programs

Since 1889, Clemson University has transformed South Carolina through top-quality education and cutting-edge research. Our public institution combines the benefits of a modern land-grant university with science- and engineering-focused research designed to move our state forward. Today, Clemson educates 15,605 South Carolinians and employs more than 6,200. As a result, the state is home to 99,592 alumni who live, work and contribute to the economic well-being of our region.

Clemson continues to deliver one of the country's highest ROI in salaries for graduates. The research, outreach and entrepreneurial projects led by our faculty and staff drive economic development across South Carolina. The University is tackling some of the state's greatest challenges through scientific advances, applied research, workforce development and powerful education outreach.

Advancing new ideas and building a strong economy for all South Carolinians require partnerships and continued financial investment of the state. These budget requests are necessary to ensure and further enhance Clemson's ability to drive innovation, stimulate economic growth and benefit all who call South Carolina home.

PUBLIC SERVICE AND AGRICULTURE (PSA) PRIORITIES

RECURRING

Poultry Science Research Facility Support — **$525,000**

PSA Statewide Operational and Programmatic Support —

$3.6M Problematic Wildlife Management — **$1.725M**

Small Fruit Research Extension — **$525,000**

NONRECURRING

PSA Planned Maintenance — **$12.17M**

Baruch Institute Research Support Building — **$9M**

Poultry Science Research Facility Support

The Poultry Science Research Center, near Clemson's main campus at the Piedmont Research and Education Center (REC), provides research, teaching and outreach support to the South Carolina poultry industry.

Goals:

- Expand programming in support of the South Carolina poultry industry.
- Hire critical research faculty and support staff.

Current State:

- According to the S.C. Poultry Federation, the South Carolina poultry industry represents 40 percent of all agriculture in the state and 80 percent of animal agriculture, accounts for approximately 13,000 jobs, and generates $1.5 billion in sales.
- Clemson currently has limited capacity to conduct relevant research needed to support this expanding industry.
- Existing research facilities at the Morgan Poultry Center were constructed prior to the mid-1970s and are at capacity and are not representative of modern poultry production environments. A new poultry research facility is being constructed with funds previously provided by the General Assembly. The new facility will support a wide variety of ongoing research by current faculty as well as bolster Clemson's ability to conduct critical research related to bird health and production.

What will this $525K do?

- Hire critical research faculty and technical support to assist with the operation of the facility and surrounding site and provide for operating costs.

PSA Statewide Operational and Programmatic Support

As a land-grant university, Clemson is part of a national system created by the U.S. Congress to improve the quality of life for citizens in every state. Clemson's Public Service and Agriculture (PSA) network conducts research, Extension and regulatory programs to improve and protect the economic prosperity and well-being of all South Carolina residents.

Goals:

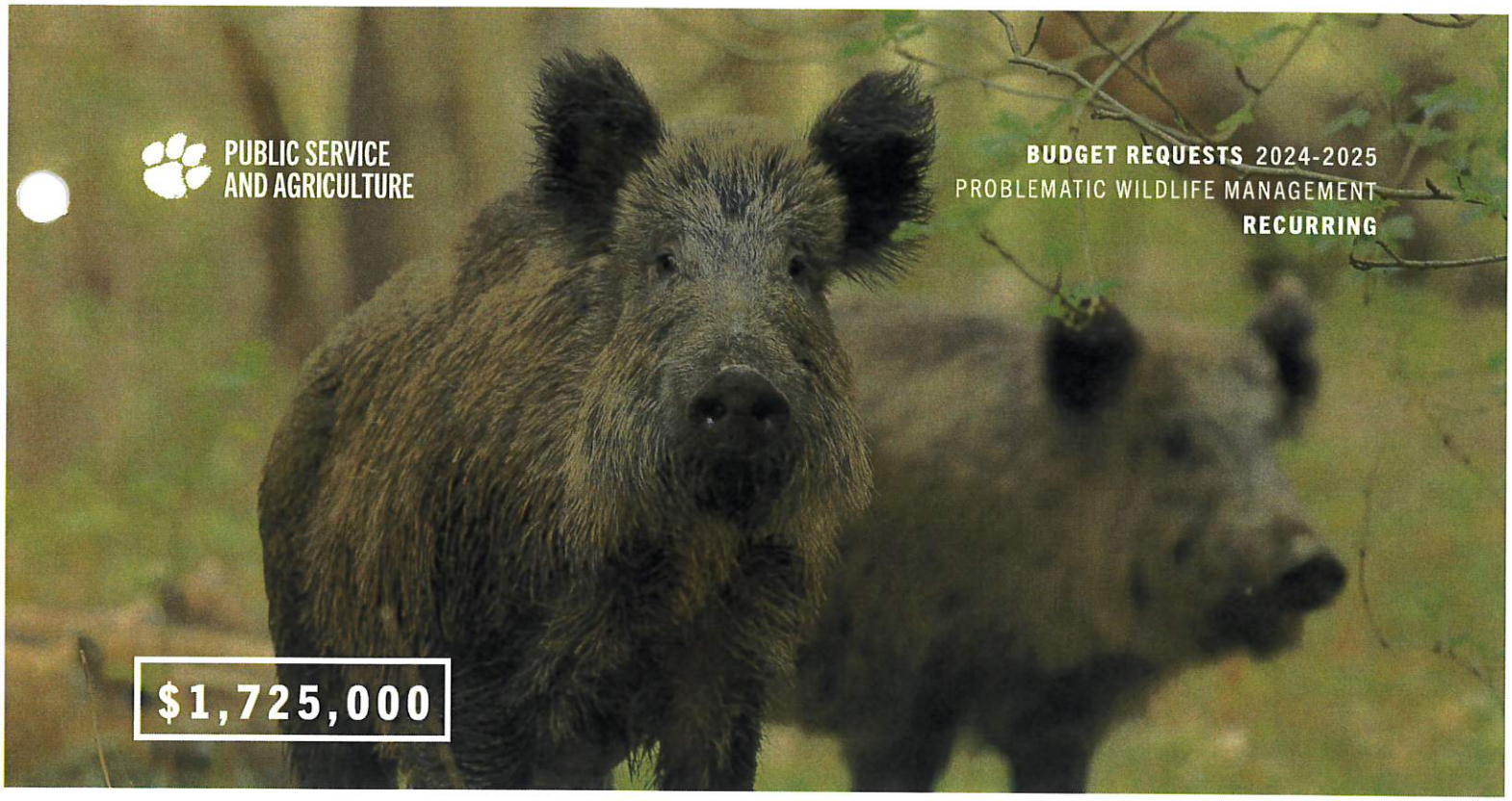
- Address inflation-driven increases in operating costs for all programs of Clemson PSA.
- Hire critical personnel to further carry out the Clemson PSA mission across the state.

Current State:

- Clemson's RECs provide regional connectivity to our farmers for applied research and education programs to support the state's agricultural industry.
- The Cooperative Extension Service provides technology transfer to commercial agriculture and homeowners through county-based outreach.
- The Livestock & Poultry Health unit provides essential services to the livestock and poultry industry through disease monitoring and control and to South Carolina citizens through the meat inspection division.
- Regulatory Services provides essential services to the plant industry and the public through its inspection, pesticide label oversight, agriculture services laboratory analytical work and pesticide applicator licensing.

What will this $3.6M do?

- Offset the increases in fuel and maintenance and the repair of research and education facilities.
- Cover the increased costs of contracted services without compromising the quality and scope of our service to the public.
- Hire critical Extension personnel to deliver information to stakeholders using advanced technology, to support the Boll Weevil Eradication program, and to support animal disease and health monitoring in South Carolina.



Problematic Wildlife Management

Clemson will provide research and education and support to address problematic wildlife management issues within the state.

Goals:

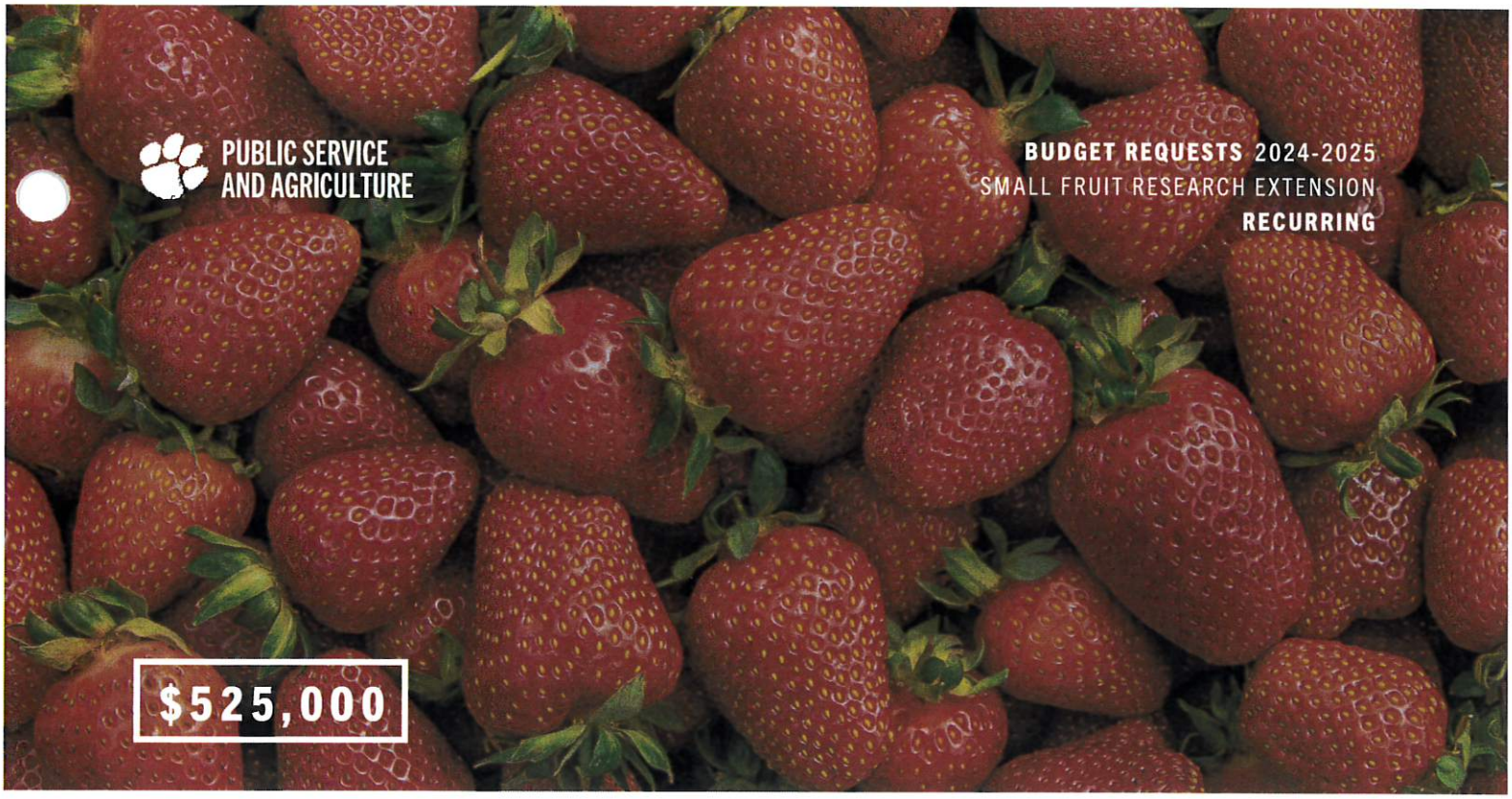
- Conduct targeted research on agricultural and timber producers' lands experiencing wildlife damage to determine the most effective methods to reduce damage.
- Promote awareness and education through Clemson's Cooperative Extension Service to agricultural producers and others by providing information on the latest techniques to reduce damage and assist landowners with developing management plans.
- Develop internship programs for students in the area of managing wildlife damage.

Current State:

- Wildlife damage control is an increasingly important part of the wildlife management profession because of expanding human populations and intensified land-use practices. Along with the growing need to reduce wildlife-people conflicts, public attitudes and environmental regulations are restricting the use of traditional tools of control, such as toxicants and traps. Economic damage to agricultural crops from wild hogs is estimated at $151M, and crop loss from deer damage is estimated at $114M annually.

What will this $1.75M do?

- Support research and Extension faculty and Extension associates across the state, as well as county agents, Extension interns, graduate students, operating and travel.



Small Fruit Research Extension

Due to demand and increased need of current and applied research in South Carolina, Clemson's Cooperative Extension Service and Experiment Station seeks to strengthen its expertise in small fruit research.

Goals:

- Keep South Carolina farmers competitive on a national and global scale through research critical to maintaining economically viable and competitive crop production.
- Recruit top-quality faculty to support identified needs and focus on identifying suitable cultivars for South Carolina as well as developing best production and disease management practices.
    - These scientists would focus on South Carolina industry needs and would lead statewide training, field days and demonstrations for agents and farmers. They would also be responsible for the development of online tools to support growers and Extension personnel.

Current State:

- Increased and enhanced small fruit research is required to meet the growing demand for diversification of South Carolina agriculture.

- External stakeholders, specifically the South Carolina Small Fruit Growers Association, have requested research and Extension support in growing small fruits, such as strawberries, blueberries, blackberries and muscadines, and other emerging niche crops, including rice, figs, loquats, citrus, pawpaw, persimmon and others.

What will this $525K do?

- Hire critical research and Extension faculty and associated operational support.
- Help small fruit farmers scale to operation.

PSA Planned Maintenance

Clemson Public Service and Agriculture (PSA) has a multiyear preventative maintenance schedule for all statewide facilities to address aging infrastructure, changes in research technology and service responsibilities.

Goals:

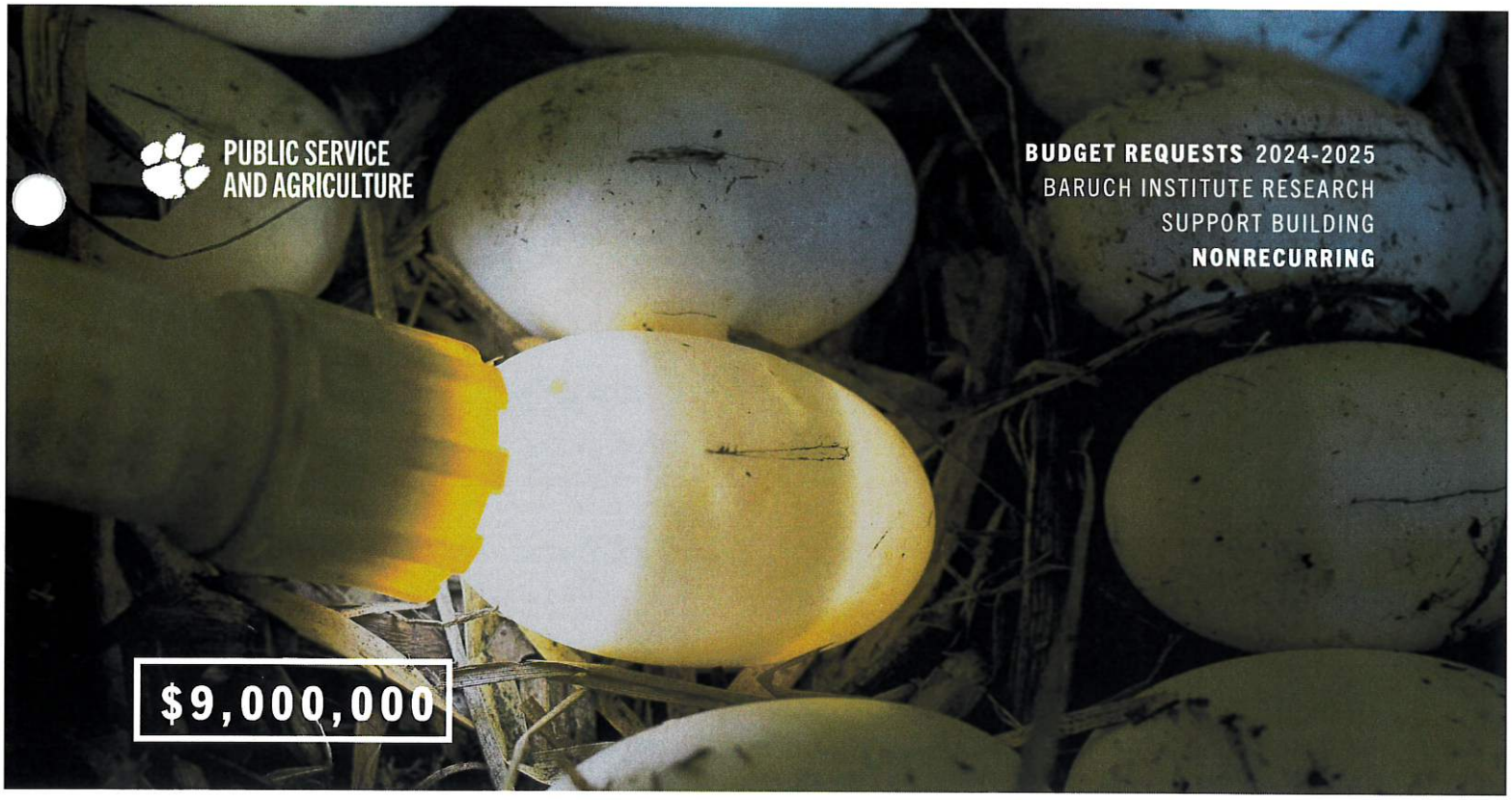
- Replace major farm equipment and outdated vehicles to ensure the safety of our employees.
- Upgrade facilities to current industry standards for operations and research needs.

Current State:

- Facilities upgrades and renovations at Clemson Research and Education Centers (RECs) and Extension facilities near campus are needed to provide safe and functional workspaces for staff and faculty. These funds would be used to renovate one of the equine barns at the Garrison Arena and upgrade vegetable research infrastructure at Coastal REC, fisheries research facility at Piedmont REC, and crop research and greenhouse facilities at Edisto REC.
- Clemson PSA has developed a multiyear preventive maintenance schedule for all facilities statewide to address aging infrastructure issues, adapt to changing technology to support our research, Extension, and service responsibilities, and ensure a safe, functional working environment. The requested funds will address the most immediate needs among all PSA-related facilities.
- Service vehicles and major farm equipment at Clemson's RECs, Extension county offices and the Livestock Poultry Health Unit need to be replaced periodically to ensure the safety of Clemson employees. State and federal surplus vehicles are used when available and when they meet the work requirements of the units. However, when surplus vehicles are not available, replacements are purchased through the state purchasing system.

What will this $12.17M do?

- Address top-priority PSA planned maintenance.
- Address critical infrastructure needs.



Baruch Institute Research Support Building

The Baruch Institute of Coastal Ecology and Forest Science (BICEFS) aims to be a globally recognized research, educational and Extension center dedicated to understanding coasts, forests, watersheds and their biodiversity — all research that is essential to the state of South Carolina.

Goals:

- Construct an approximately 6,000-square-foot research facility for the Baruch Institute of Coastal Ecology and Forest Science (BICEFS) in Georgetown, South Carolina.

Current State:

- The work done at BICEFS positions Clemson to inform policy and provide high-impact applied solutions for a resilient environment, sustainable economies and a high quality of life.
- The Institute has doubled the size of its faculty and staff in the last five years and increased the number of graduate and undergraduate research programs at the site. With the investment in new faculty and the demand for expanded research, specialized research space is required. Current faculty have only ~40 percent of the space needed to conduct viable research.

What will this $9M do?

- Construct a new, specialized research facility to accommodate current and future student and faculty needs.
- Allow for existing instrumentation to be moved into the new facility and repurpose existing space for teaching, grad student space and flexible project use.

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Clemson's Public Service Commitment

FY2024-25 Budget Request

As a land-grant university, Clemson is part of a national system created by the U.S. Congress to improve the quality of life for citizens in every state through teaching, research (Experiment Station) , and extension (Cooperative Extension Service*). The university's statewide **Public Service and Agriculture (PSA)** system conducts research, Extension and regulatory programs that improve and protect economic prosperity and well-being for all South Carolina citizens. Clemson PSA programs develop and deliver impartial science-based information in five areas that align with the national land-grant university system and touch the life of every South Carolinian. Those areas are: agribusiness productivity and profitability; economic and community development; environmental conservation; food safety and nutrition; and youth development and families.

Recurring Requests

1. **Poultry Science Research Facility Support – $525,000**
   The Poultry Science Research center, near Clemson's main campus on the Piedmont REC, provides research, teaching, and outreach support to the South Carolina poultry industry. According to the S.C. Poultry Federation, the South Carolina poultry industry represents 40% of all agriculture in the state, 80% of animal agriculture, accounts for approximately 13,000 jobs and generates $1.5 billion in sales. Clemson currently has limited capacity to conduct relevant research needed to support this expanding industry. The new facility will support a wide variety of ongoing research by current faculty as well as bolster Clemson's ability to conduct critical research related to bird health and production.

2. **PSA Statewide Operational & Programmatic Support – $3.6 million**
   Clemson's Research and Education Centers provide regional connectivity to our farmers for applied research and education programs to support the agriculture industry. Our Cooperative Extension Service provides technology transfer to commercial agriculture and homeowners. The Livestock Poultry Health unit provides essential services to the livestock and poultry industry through disease monitoring and control and to South Carolina citizens through the meat inspection division. Rising operational costs due to inflation and other factors within the Experiment Station, Cooperative Extension Service and the Livestock Poultry Health Unit have strained the current funding levels. Funding is needed to carry out our research, Extension, and regulatory programs to assist the agricultural industry and communities statewide.

3. **Problematic Wildlife Management – $1.725 million**
   South Carolina farmers reported damage and economic losses from feral hogs to be $151.5 million annually. Economic losses to crops from deer damage are estimated to be $114 million annually. Other wildlife, such as coyotes, are having significant negative impacts on livestock, fruit and melon production, and native wildlife. Wildlife damage control is an increasingly important part of the wildlife management profession because of expanding human populations and intensified land-use practices. This request proposes utilizing Clemson University's expertise to develop an effective and impactful program to reduce wildlife damage and resolve human-wildlife conflicts in South Carolina through research and Extension.

4. **Small Fruit Research Extension– $525,000**
   Due to demand and increased need of current and applied research in South Carolina, Clemson's Cooperative Extension Service and Experiment Station seeks to strengthen its expertise in small fruit research. These funds would hire critical research and Extension faculty and associated operational support in their goal of helping small fruit farmers scale to operation. Clemson aims to keep South Carolina farmers competitive on a national and global scale through research critical to maintaining economically viable and competitive crop production.

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Non-Recurring Requests

1. **PSA Planned Maintenance – $12.17 million**
   Clemson PSA has developed a multi-year preventive maintenance schedule for all facilities, statewide, to address issues associated with aging infrastructure, adapting to changing technology to support our research, Extension, and service responsibilities, and to ensure a safe, functional working environment. The requested funds will address the most immediate needs among all PSA-related facilities: one of the Equine Barns at the Garrison Arena, upgrades to the vegetable research infrastructure at Coastal REC, Fisheries Research Facility at Piedmont REC and crop research and greenhouse facilities at Edisto REC, and for major equipment and vehicle replacement.

2. **Baruch Institute Research Support Facility – $9 million**
   The Baruch Institute of Coastal Ecology and Forest Science (BICEFS) aims to be a globally recognized research, educational and extension center dedicated to understanding coasts, forests, watersheds, and their biodiversity – all research that is essential to the state of South Carolina. The work done at BICEFS positions Clemson to inform policy and provide high impact applied solutions for a resilient environment, sustainable economies, and a high quality of life. The Institute has doubled the size of its faculty and staff in the last five years and increased the number of graduate and undergraduate research programs at the site. With the investment in new faculty and the demand for expanded research, specialized research space is required. Current faculty have only ~40 percent of the space needed to conduct viable research. These funds would both construct a new, specialized research facility to accommodate current, and future, student and faculty needs, and allow for existing instrumentation to be moved into the new facility while re-purposing existing space for teaching, graduate student space, and flexible project use.

**Clemson's Experiment Station conducts agriculture and natural resource research at six stations across the state and on Clemson's main campus to find solutions that improve production in South Carolina...*

Clemson's Cooperative Extension Service:

- *Delivers science-based information to <u>all</u> citizens through offices located in all 46 counties in South Carolina*
- *Delivers cutting edge technology to solve problems related to agri-business, forests industries, and natural resources*
- *Promotes youth development through the 4-H program*
- *Finds solutions to improve the quality of life through community development programs designed to meet local needs*
- *Teaches research-based information in food, safety, and nutrition*

An investment in Clemson-PSA is an investment in science, service, and solutions for farmers and citizens in each county throughout South Carolina.

January 15, 2024

The Honorable Leon Stavrinakis
Chairman
Budget Subcommittee Economic Development and Natural Resources
House Ways and Means Committee
PO Box 11867
Columbia, SC 29211

Dear Chairman Stavrinakis:

I am writing on behalf of Palmetto AgriBusiness Council (PABC) in support of Clemson University's Public Service Activities (PSA) budget request (FY 2024-25). PABC's mission is to sustain the economic viability of South Carolina's largest industry- agribusiness, which contributes $51.8 billion to the state's economy and provides 259,215 jobs.

Clemson has identified the following important initiatives to keep South Carolina agribusiness competitive:

Recurring

Poultry Science Research Facility Support - $525,000

The Poultry Science Research center, near Clemson's main campus on the Piedmont REC, provides research, teaching and outreach support to the South Carolina poultry industry. According to the S.C Poultry Federation, the South Carolina poultry industry represents 40% of all agriculture in the state, 80% of animal agriculture, accounts for approximately 13,000 jobs and generates $1.5 billion in sales. Clemson currently has limited capacity to conduct relevant research needed to support this expanding industry. The new facility will support a wide variety of ongoing research by current faculty as well as bolster Clemson's ability to conduct critical research related to bird health and production.

PSA Statewide Operational & Programmatic Support - $3.6 million

Clemson's Research and Education Centers provide regional connectivity to farmers for applied research and education programs to support the agriculture industry. The Cooperative Extension Service provides technology transfer to commercial agriculture and homeowners. The Livestock Poultry Health Unit provides essential services to the livestock and poultry industry through disease monitoring and control and to South Carolina citizens through the meat inspection division. Rising operational costs due to inflation and other factors within the Experiment Station, Cooperative Extension Service and the Livestock Poultry Health Unit have strained the current funding levels. Funding is needed to carry out research, Extension, and regulatory programs to assist the agricultural industry and communities statewide.

Problematic Wildlife Management - $1.725 million

South Carolina farmers reported damage and economic losses from feral hogs to be $151.5 million annually. Economic losses to crops from deer damage are estimated to be $114 million annually. Other wildlife, such as coyotes, are having significant negative impacts on livestock, fruit and melon production, and native wildlife. Wildlife damage control is an increasingly important part of the wildlife management profession because of expanding human populations and intensified land-use practices. This request

CLEMSON® PSA IMPACT REPORT - SOUTH CAROLINA

All data reported below on Clemson University Cooperative Extension & PSA operations in the state of South Carolina was collected from University reports and reporting systems for FY 2022-23.

PUBLIC SERVICE AND AGRICULTURE

COOPERATIVE EXTENSION

www.clemson.edu/Extension

Director: Dr. Thomas Dobbins

Clemson Extension helps improve the quality of life of all South Carolinians by providing unbiased, research-based information through an array of public outreach programs in youth development; agribusiness; agriculture; food, nutrition and health; and natural resources. With offices in all 46 counties of the state, Extension works to help support South Carolina's $51.8 billion agriculture and forestry industries; strengthen families and communities; improve stewardship of natural resources and the environment; strengthen connections between people and their food; and expose South Carolina youth to opportunities in agriculture, science, technology, engineering and math.

Program Participation

9,081 educational programs and workshops conducted using direct methods
181,530 people participating in educational programs *(reached through direct methods with race, gender, and ethnicity known)*
105,415 reporting increase in knowledge (from educational programs)
85,427 reporting use of information received for reported programs
53,665 other educational contacts *(individuals receiving information by phone, office, and/or farm visits)*

51 participants in Extension New & Beginning Farmer Program 2017-23

Volunteer Information

919 Master Gardener volunteers
66,219 Master Gardener volunteer hours
215 Rural Health & Nutrition volunteers
1,593 Rural Health & Nutrition volunteer hours
3,736 4-H volunteers
22,416 4-H volunteer hours *(estimated at 6 hours per volunteer)*
$630,113.76 Total value of volunteer hours worked
(Volunteer value estimated at $28.11 per hour. Source: Independent Sector)

Extension Programs: Agribusiness; Agricultural Education; Agronomic Crops; Horticulture; Livestock & Forages; Forestry; Wildlife & Water Resources; Food Systems & Safety; USDA Expanded Food and Nutrition Education Program (EFNEP); Rural Health; 4-H Youth Development

$168,400,577.02 Sponsored Program Awards to Extension programs in FY23

Precision Agriculture - Clemson University Center of Agriculture Technology
Director: Dr. Kendall Kirk

Global Users .....4,543 *(excluding US)*
US Users..... 38,331
SC Users 689

Clemson University Secures Funding to Help Tackle Obesity in SC

Clemson has been awarded $768,000 by a CDC grant, for a 5-year High Obesity Program targeting rural and underserved areas in South Carolina. The program aims to combat obesity by improving access to healthy foods and physical activity. This project involves researchers from the College of Agriculture, Forestry and Life Sciences, along with the Rural Health and Nutrition Extension team and aims to enhance health and quality of life in South Carolina.

PSA Expenditures and Employees

PSA Employees in South Carolina County: 976
(may include part-time personnel or split with other counties)

Federal Expenditures: $37,878,281.48
Other (Grants, Contracts, County Funds): $47,649,385.22
State Expenditures: $70,919,445.71
Total (includes capital, operating & personnel): $156,447,112.40

Clemson & College of Agriculture, Forestry and Life Sciences
(CAFLS) Students & Alumni in South Carolina County:

Enrolled undergraduates..... Clemson: 13,336 CAFLS: 1,365
Enrolled graduate students ..... Clemson: 2,413 CAFLS: 118
Alumni ..... Clemson: 102,511 CAFLS: 9,533

LIVESTOCK POULTRY HEALTH

www.clemson.edu/lph

Director: Dr. Michael Neault

Clemson Livestock Poultry Health (LPH) serves as South Carolina's animal health authority, state meat and poultry inspection department, and the state's veterinary diagnostic center. LPH has a major role in protecting the health of food animals (beef, poultry, swine, etc.) and other livestock and preserves access to domestic and export markets. These critical services significantly impact economic activity in the state's agribusiness industry. Livestock, poultry, and products represent 64Percent of agricultural products sold in South Carolina. The state ranks 9th in the nation in sales of poultry and eggs, with a market value of $1.6 billion (USDA 2017 Census).

LPH Certificates of Veterinary Inspections (CVI*): 27,595
Livestock: 449,514 Equine: 16,566
Poultry: 1,635,890 Other: 9,682
Total animals included on all CVIs in county: 2,111,652

**CVIs are required for interstate movement of animals across state borders. Livestock & Poultry Health has authority over processing and monitoring CVIs to ensure they meet all requirements in the law or regulation. One certificate may include more than one animal.*

LPH SC Meat-Poultry inspection department facilities inspected:

Slaughter & processing: 10 Processing only: 22
Custom exempt: 23 Rendering: 6
Total state: 69 Cross utilization (federal): 1-P, 1-S, 5 S/P

Emergency Preparedness, Response, & Recovery:

LPH is the primary agency for Emergency Support Function 17 (ESF-17) of the State Emergency Operations Plan that involves animal and agriculture emergency response. LPH partners with several support agencies to help the State Emergency Management Division and the Governor coordinate statewide resources needed to support South Carolina citizens in all hazards and disasters. LPH, Regulatory and Extension personnel manage the ESF-17 desk at the Emergency Operations Center.

REGULATORY SERVICES

www.clemson.edu/regulatory

Director: Dr. Steve Cole

The responsibilities of Regulatory Services include the eradication and prevention of plant pests; regulation of pesticides and fertilizers; seed, turfgrass and organic certification; and inspection of shipment and sale of trees, plants and shrubs. (Source: South Carolina Code of Laws Sec.46-9-10)

PESTICIDE REGULATION

5,031 Licenses 2,024 Inspections
8,837 Pesticide Sample Analysis 164 New Dealers

AGRICULTURAL TESTING & ANALYSIS

33,301 Soil Samples 296 Animal Feed & Forage Samples
213 Water Samples 487 Animal Waste Samples
194 Plant Tissue Samples 25 Compost Samples

PLANT INDUSTRY

583 Grower Nursery Inspections 276 Dealer Nursery Inspections
433 Nursery Compliance Agreements 7,200 Fertilizer Inspections

PLANT PROBLEM CLINIC

869 Plant & Turf Problem Diagnosis 86 Plant/Weed Identification
78 Insect Identification 584 Nematode Assay
190 Molecular Plant Pathogen Detection 11 Commercial Turfgrass Clinic

South Carolina Reduces Costs in Boll Weevil Eradication - South Carolina's Boll Weevil Eradication Program has reduced the per-acre assessment for cotton growers from $1.75 to $1.25. This cost-saving measure, initiated by the Southeastern Boll Weevil Eradication Foundation, is expected to save an estimated $132,234 annually for the state's farmers.

CLEMSON® PSA IMPACT REPORT - SOUTH CAROLINA

To access weblinks to stories, click on bold purple text or use QR code (patterned square). QR code requires reader app or iPhone camera.

PUBLIC SERVICE AND AGRICULTURE

PIEDMONT RESEARCH & EDUCATION CENTER

www.clemson.edu/piedmont
101 Ag Service Center, Old Cherry Road, Clemson

Director: Dr. Matt Hersom

The Piedmont REC consists of all research farms located on and around Clemson University's main campus, including: LaMaster Dairy Cattle Center; Morgan Poultry Center; Musser Fruit Research Center; Simpson Station; Simpson Beef Cattle Farm; Small Ruminant Unit; Aquaculture Center; and Organic Research Center.

Research Areas: Dairy & beef cattle; Poultry; Small ruminants; Aquaculture; Fruit crops; Row crops; Forage crops; Vegetable crops and Organic production.

FY2022-23 Sponsored Research Awards to REC and CAFLS Faculty assigned to REC: $14,450.00

Researchers Exploring Grain Sorghum as a Corn Alternative in Poultry Diets
A team of researchers out of Clemson investigated the potential of using various grain sorghum varieties as an alternative to corn in poultry diets. They studied how different sorghum varieties affect the energy available to the birds from the feed and how this influenced their growth and overall health. This research is important for the poultry industry as it explores sustainable and efficient feed options in the face of environmental challenges and rising feed costs.

SANDHILL RESEARCH & EDUCATION CENTER

www.clemson.edu/sandhill
900 Clemson Road, Columbia

Director: Dr. Kathy Coleman

Sandhill Research and Education Center is comprised of 600 acres and houses the Extension Agribusiness Center. SSandhill offers a number of research and demonstration areas and an incubator farm for start-up farmers. The Center also hosts the Sandhill Farmer's Market for use by farmers in the surrounding region. Farmers are required to personally grow a certain Percentage of the items sold at the Market.

Research Areas: Farm and Financial Management; Policy; Local food systems; Fruit crops; Marketing; Agritourism; Entrepreneurship; Natural Resources; Wildlife; Forestry; Education; Environmental Conservation and Sustainability.

FY2022-23 Sponsored Research Awards to REC and CAFLS Faculty assigned to REC: $2,749,035.50

Studies in Lavender Aid Local Lavender Farmers
Supported by a $160,000 USDA grant, Clemson researchers started investigating Phytophthora rot in lavender, a major industry threat. They've identified six new and two existing host-pathogen relationships, emphasizing the need for resistant lavender varieties and better disease management. This research will benefit local lavender farmers reduce costs by improving Phytophthora rot prevention and control, ultimately reducing the costs associated with the disease.

EDISTO RESEARCH & EDUCATION CENTER

www.clemson.edu/edistorec
64 Research Road, Blackville

Director: Dr. John Andrae, Interim

Edisto REC has 2,354 acres of row crop, pasture, and forested land in the coastal plain of South Carolina. Scientists at Edisto REC work with growers and industry professionals throughout South Carolina to conduct on-farm and on-station replicated trials and demonstrations.

Research Areas: Agricultural engineering, Animal feed grains, Livestock & forages, Entomology, Irrigation, Peanut production, Plant pathology, Precision agriculture, Sensor utilization & automation, Soil fertility, Weed science, and Vegetable production.

FY2022-23 Sponsored Research Awards to REC and CAFLS Faculty assigned to REC: $8,585,899.85

Research Study to Enhance Organic Watermelon Production
Edisto REC scientists, led by Bhupinder Jatana, are enhancing organic watermelon farming, thanks to a USDA grant aimed to improve organic crop production. Together they are innovating in nutrient management and pest control, developing organic fertilizers, and utilizing plastic mulch. This effort contributes to the larger movement of increasing organic farming's efficiency and profitability in both the state and country.

BARUCH INSTITUTE OF COASTAL ECOLOGY & FOREST SCIENCE

www.clemson.edu/baruch
Highway 17 North, Georgetown

Director: Dr. Mažeika Sulliván

The Baruch Institute of Coastal Ecology and Forest Science conducts research and outreach to promote sustainable coastal environments. The Institute educates and informs the public and policy makers on the impact of urban growth and changing land use patterns on major components of the coastal landscape - forests, vegetation, water, and wildlife.

Research Areas: Coastal resource conservation; Water quality; Watershed management; Forest systems; Agroforestry; Urban forestry; Coastal forested, riparian and wetland ecosystems; Low impact development practices; Landscape ecology; Invasive species; Wildlife; Ecological economics

FY2022-23 Sponsored Research Awards to REC and CAFLS Faculty assigned to REC: $6,643,837.35

Studies in Tital Freshwater Forested Wetlands Underway at Baruch REC
Clemson researchers have started exploring the microtopography of tidal freshwater forested wetlands along the Atlantic coastline, focusing on features like hummocks and hollows. Their studies, including work on the Waccamaw River in SC, are key to understanding and managing the effects of environmental changes on these important ecosystems.

COASTAL RESEARCH & EDUCATION CENTER

www.clemson.edu/coastalrec
2700 Savannah Highway, Charleston

Director: Dr. Patrick Wechter

Coastal REC shares a research building with the USDA ARS U.S. Vegetable Laboratory. Coastal REC's experimental farm consists of 325 acres and provides 80 acres for research plots. Coastal REC also established an Urban Research & Demonstration area to provide horticultural information and guidance to the surrounding urban and suburban population. The area is maintained by local Master Gardeners and includes a small arboretum and beds with native plantings, herbs, edible plants, small fruit, and shade gardens.

Research Areas: Vegetable and Specialty Crop Breeding & Research, Tomato, Rice, Watermelon production, Organic production, and Weed management.

FY2022-23 Sponsored Research Awards to REC and CAFLS Faculty assigned to REC: $6,821,510.77

Rice Researchers Aim to Develop Climate Resistant Varieties
As part of the $70 million USDA Grant, a research team, led by Raghupathy Karthikeyan, focused on developing climate-resilient rice. This study aimed to enhance rice farming sustainability and profitability. The project's goal was to identify salt-tolerant rice varieties and establish effective farming practices. Historically significant in South Carolina, rice farming dwindled due to saltwater intrusion. This research could revive the industry, benefiting the organic rice production in SC coastal areas. Field trials are took place at Clemson's Coastal REC in Charleston.

PEE DEE RESEARCH & EDUCATION CENTER

www.clemson.edu/peedeerec
2200 Pocket Road, Florence

Director: Dr. John Andrae, Interim

Clemson's Pee Dee REC is made up of 2,300 acres located in Darlington and Florence counties. Pee Dee REC promotes economic development by conducting research and education programs focused on traditional and new plant-based systems relevant to the Pee Dee region of South Carolina.

Research Areas: Cereal grains breeding and Genetics; Corn; Cotton; Molecular plant breeding; Soil biogeochemistry and Soil health; Sorghum; Small grains entomology; Soybean, Tobacco, Turfgrass

FY2022-23 Sponsored Research Awards to REC and CAFLS Faculty assigned to REC: $5,739,265.70

Scientists Receive Grant to Develop Climate-Resilient Cereal Crops
Pee Dee REC researchers are developing climate-resilient cereal crops such as sorghum and rice, supported by a $22 million USAID grant. Based at Clemson's Pee Dee REC, the project, led by experts like Dr. Kresovich and Dr. Boyles, uses innovative methods to improve crop resilience. Researchers Dr. Hershberger and Dr. Rife are creating cost-effective data analysis techniques for plant breeding. This program aims to enhance worldwide food security by enabling the cultivation of crops in regions previously unsuitable due to climat constraints.

College of Agriculture, Forestry and Life Sciences; Public Service and Agriculture

Clemson Extension specialists share tips for growing corn and soybeans

Denise Attaway

Share:

Clemson Corn and Soybean Growers' Meeting attendees learn how spray drones are being used in agriculture research.

January 9, 2023

As South Carolina corn and soybean farmers prepare for the 2023 growing season, Clemson Extension specialists have a few tips to help ensure productive and profitable crops.

pay attention to new crop insurance planting date deadlines for soybeans starting this year (2023).

Clemson Extension corn and soybean specialist Michael Plumblee told soybean farmers they will be able to get crop insurance coverage starting on April 1 for soybean in 2023. This date was moved up from the previous dates of April 30 for the coastal plain and April 15 for the upstate, allowing for coverage on earlier planted soybean in South Carolina.

Michael Plumblee

"Additionally, the final planting date has been moved back to June 30 from June 25 for full coverage, and the absolute last day to plant and have reduced coverage still remains July 10," Plumblee said.

These date changes were made possible by working through the Farm Bureau Soybean, Hay and Feed Grain Committee; the Risk Management Agency office in Valdosta, Georgia, as well as the South Carolina Soybean Board and Clemson University.

As for corn, the United States Department of Agriculture's (USDA) unofficial baseline projections forecast farmers are likely to expand plantings for the 2023/2024 season while reducing soybeans. Plumblee says farmers should use local hybrid and varietal trial data when making selections for 2023, paying close attention to disease resistance packages in scenarios where crop rotations may be short. Clemson corn variety test data is available at https://www.clemson.edu/cafls/research/vt/corn.html.

Plumblee also talked about a project he and graduate student Bennett Harrelson are working on related to double-cropping soybean after corn. The researchers are looking at plant and harvest dates, row spacing, and the use of at-plant nitrogen. They also are studying to determine if this double-cropping system leads to issues with increased plant parasitic nematodes.

Deer, insect pests and Bt resistance

Farmers were advised of actions to take to control deer and insect pests.

Using repellents is one way to control deer but can be expensive. Kendall Kirk, a precision agriculture engineer, said installing high fences around crops may be less costly.

Insect pests create additional problems. Entomologists Francis Reay-Jones and Jeremy Greene, together with Clemson IPM Program assistant coordinator Tim Bryant, talked about corn and soybean insects. Most of the state's corn acreage is planted in Bt (*Bacillus thuringiensis*) corn. Resistance issues with corn earworm in Bt corn are leading to resistance issues in Bt cotton. The corn earworm also is known as the

Stink bugs also are a problem. Applying pyrethroids can be effective "but scouting and timely applications are important," said Bryant, adding South Carolina farmers can get disease and insect management information from the free MyIPM for Row Crops app.

Pyrethroids also are effective in controlling stink bugs and kudzu bugs in soybean, Greene said. Treatment thresholds are one to two stink bugs per sweep for stink bugs and one nymph per sweep for kudzu bugs. Following these guidelines can help reduce the need for multiple sprays.

Pyrethroids are not effective for the soybean looper, which causes problems from mid-August to mid-September. The threshold for soybean loopers is 30% defoliation before mid-bloom and 15% after. This pest is resistant to many insecticides and costs more to control.

Spray drones

Guest speaker Steve Li, associate professor of weed science at Auburn University, talked about using drones to spray row crops.

"Spray drones make it easy for growers with small acreage, slopes, or challenging field shapes to make field applications without taking a boom sprayer in the field or contracting a crop duster," Li said.

The end goal is not to replace current application methods, but to find methods to work spray drones into field management. Drone use in field crop farming is low because the technology is still new. However, Li said interest is high among growers, crop consultants and pesticide applicators. He believes the ease of use will increase the adoption rate of drones.

Interest in using drones in agriculture is high among growers, crop consultants and pesticide applicators.

Other speakers included Dean Hutto, S.C. Soybean Board chairman; Mary Cromley, S.C. Corn and Soybean Association executive director; Ed Wilkins, S.C. Farm Bureau Mutual Insurance; Rick Caldwell, S.C. Farm Bureau; Ashley Carothers, S.C. Department of Health and Environmental Control, and Alexa Combelic, director of government relations for the American Soybean Association.

A drone demonstration followed the meeting.

SOYBEAN

SOUTHEAST FarmPress.

Deer cause $30 million damage to South Carolina soybean farmers

Deer damage to South Carolina soybeans and other crops is significant

John Hart

January 20, 2023

6 Min Read

Many farmers are spending $25 or more per acre on deer repellents. MIDWESTWILDERNESS / ISTOCK / GETTY IMAGES PLUS

At a Glance

- Deer densities greater than 20 to 30 deer per square mile may create significant crop loss.
- The deer population in South Carolina is estimated at 750,000.

Deer are unwelcome guests to any soybean field, with figures showing they cause a whopping $30 million annual loss to South Carolina soybean farmers.

The $30 million number comes from USDA's National Agriculture Statistics Service for 2020, coupled with recent Clemson University research showing an estimated loss of soybeans pegged at 3 million bushels. However, Kendall Kirk, a precision ag engineer at Clemson University, cautioned that the $30 million figure is a crude estimate, due to the limited data currently available on deer damage to crops in South Carolina.

One thing is certain, though, the economic impact due to deer damage to soybeans and other crops in South Carolina is significant. Kirk said there is still more to learn, and more data is needed. Clemson is working with farmers and commodity boards to measure the impact of deer on South Carolina soybeans and other crops.

At the South Carolina Corn and Soybean production meeting, organized by the South Carolina Soybean Board and Clemson Cooperative Extension, at the Santee Civic Center in

Santee, S.C., Dec. 14, Kirk highlighted results of the ongoing research looking at deer damage to soybeans in South Carolina.

Kirk credited Clemson Extension Wildlife Biologist Cory Heaton and Ph.D. graduate student Perry Loftis for doing most of the "heavy lifting" and work on the important project. He stressed that deer population estimates conducted by Clemson near agriculture production land demonstrates much higher populations than those reported by the South Carolina Department of Natural Resources, which represent regional averages in various areas of the state.

Among the research findings:

- Deer densities greater than 20 to 30 deer per square mile may create significant crop loss.

- Harvesting 20 to 30% of adult does will stabilize herd density (according to National Deer Association).
- The estimated 2020 statewide deer harvest was 198,000 in 2020.
- The deer population in South Carolina is estimated at 750,000 (according to the South Carolina Department of Natural Resources 2020 deer report).

Kirk stresses these figures are extrapolations and should be considered crude estimates, given the limited data currently available. Certainly, the question remains, what can farmers do to limit deer damage to soybeans and other crops?

Repellents

Many farmers use deer repellent, but Kirk noted many studies show just 10 to 14 days efficacy for repellents. After 10 to 14 days, and if there is rain, you will have to reapply repellents.

"When the natural forage runs out, in a dry year, when they don't have anything to feed on in the woods, where are they going to go? If they are hungry, they are going into your fields. They probably don't want to come into the fields in the open; they want to stay in the woods if they can, if there is enough for them to eat there, but they will come into your fields when they need to," Kirk said, noting that it comes down to the risk versus the reward for the deer.

Kirk notes not everyone uses deer repellents, while some farmers use repellents on just some of their land. But he said many farmers are spending $25 or more per acre on deer repellents.

"Nobody wants to hear this, but if you were to put in a high fence, it's not unreasonable to say you could do it for $250 per acre," Kirk said. "That's a tremendous investment. But if that high fence lasted you 10 years, then that's $25 an acre a year. That's compared to the same amount you're spending on repellent that has marginal efficacy and that you are going to have to put out again and again and again."

Another way to look at the benefit of fences is to examine the damage farmers saw in 2022 with $14-per-bushel beans. Kirk estimated deer damages to soybeans at 13.1 bushels per acre, which comes to an average of $183 per acre.

"If you're above the average, it's more than that," Kirk said. "If you were to invest $250 per acre in a fence, you'd have it paid for it in the first year and you'd make money on it in the second year is what our estimates show right now."

In an interview with Southeast Farm Press following the Santee meeting, both Kirk and Heaton emphasized the value of fences, but stressed efforts must continue to reduce the overall deer population across South Carolina.

"Once you stand a fence up, immediately you have reduced the carrying capacity," Kirk explained. "Agriculture is what supports an elevated carrying capacity. It's what allows you to have more than 20 to 30 deer per square mile.You're basically laying out a buffet for them every day.Farmers actually can play a role in their own solution."

Heaton also emphasized fences are still the most effective option for farmers to manage deer. But he said the deer population clearly needs to be reduced across South Carolina.

Reducing herd

"In order for other options to work, deer repellents, and other things, we really need to work on reducing that deer herd down to lower densities: 20 to 30 deer per square mile or less," Heaton said. "In our ag areas, we are more realistically seeing, 125 plus deer per square mile. In fact, in some farming areas across the state, deer densities range from 127 to 272 deer per square mile.

"At our research facility in Blackville, we have worked extensively to keep that herd down and we're right at 30 deer per square mile," he said, noting that getting the deer population down to 30 deer per square mile is the ultimate goal for control. If the number can't be lowered to 30 deer or less per square mile, fencing is basically the only economical option.

Efforts to reduce the populations through hunting, particularly the hunting of does must continue.

"Ideally, your regular deer season would allow the opportunities to do reduce our numbers," Heaton said. "The Department of Natural Resources in South Carolina has promised me they would work with growers to get them all the doe tags they need to make that happen. The problem is hunters don't want to do that. Hunters want to go and shoot a doe or two, but they really want to kill bucks. In South Carolina, we harvest more bucks than we do does every single year, and that doesn't really help us with the overall population."

Heaton said Clemson is committed to helping farmers find solutions to deer problems.

"The real issue is how much time a farmer has," Heaton said. "Does he really have time to battle that deer population. It is very time-consuming. If they can't get it done in the regular hunting season, we do have permits that will allow them to take deer outside of the hunting season, but that requires a lot of nighttime work to get that done. We can't expect our farmers to work 24 hours a day.

"If we don't find a solution to this, with the way our deer herd is, you're going to see more and more fields go out of production each year because of deer problems. And at the rate that our population of humans is growing, those fields are going to be lost forever. They are going into subdivisions, businesses and other uses."

Read more about:

Deer

South Carolina

Small Fruit Growers Association, Inc.

...serving the small fruit growers of S.C.

May 12, 2023

Dr. Keith L. Belli, Dean and Associate Vice President
College of Agriculture, Forestry and Life Sciences
101 Barre Hall
Clemson, SC 29634-0303

Dear Dean Belli,

The South Carolina small fruit industry is an economic driver with great growth potential to provide more consumers healthy and nutritious products. According to a 2022 report prepared for the South Carolina Department of Agriculture, ***"The Economic Impact of Agribusiness in South Carolina"***, it was reported fruit farming in South Carolina had a direct economic output of more than $171 million. The role of our South Carolina small fruit growers will continue to significantly increase in today's health-conscious environment as many doctors are already recognizing the importance of fresh fruits and vegetables in diets and writing 'produce prescriptions' for individuals.

On behalf of the hundreds of small fruit growers in South Carolina that will be expected to meet this growing consumer demand, we request the College of Agriculture, Forestry and Life Sciences at Clemson University create a Small Fruit Specialist position with both research (75%) and extension (25%) responsibilities. This position would utilize the Musser Fruit Research Center but also work statewide with a primary focus on strawberry, blackberry, blueberry, grape and muscadine crop production. Some position responsibilities we believe to be critically important would include,

- Identify suitable cultivars for state-wide commercial production.
- Develop best horticultural and Integrated Pest Management (IPM) practices.
- Conduct on-farm research and develop demonstration plots for extension purposes.
- Communicate with South Carolina growers relating research and production practices.
- Coordinate research with other College faculty to tackle problems in a holistic manner.

This position is desperately needed to assist our industry to grow and meet the demand anticipated from consumers over the next decade. Our growers have recently organized the South Carolina Small Fruit Growers Association to be a resource to Clemson as the University serves the Land Grant mission to South Carolina agriculture. We look forward to providing input in the hiring of this position. Thank you for your consideration.

Please let me know if there is any additional information we can provide.

Sincerely,

Robert M. Hall

Robert M. Hall, President
Bush-N-Vine Farm, York, SC
bob@bushnvinefarm.com

cc: Dr. Tom Dobbins
Dr. Paula Agudelo