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Institutional Information Request Form

Southern Region: Value of Extension Services and Experiment Stations

The Battelle Memorial Institute is working with the leadership of the *Association of Southern Region Extension Directors* and the *Southern Association of Agricultural Experiment Station Directors* in producing analysis and a high-profile report on the special value of extension and experiment stations in the development of the 21st Century agbioscience economy. Each of the land grant universities in the 13 state and 2 U.S. territory southern region is collaborating in performance of this important project.

For each of the land-grant institutions participating in this project, Battelle is requesting information, data, project examples, etc. that will help illustrate the value of experiment stations and extension services. Completion of this information request is an important step in the information gathering required for this project. We are requesting that at each institution, the Experiment Station Director and the Extension Director **jointly** complete each section to the best or your collective ability. Note that within this form, Agbiosciences includes all aspects of agricultural, environmental, and biological sciences; as well as forestry, fisheries, wildlife, agro-tourism, and recreation; which are within the purview of the experiment station and/or extension service. Also, if you have additional supporting documents, reports, statistical summaries, etc. that you believe would be helpful to this project please forward them to the consulting team at Battelle together with your completed form. The form is set-up using MS-Word tables so you can type directly into the table boxes.

Please return the completed form to Simon Tripp at Battelle via email to tripps@battelle.org If you have questions please direct them to Simon at:

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Section 1: Institutional Profile

University Name	*North Carolina State University*
Extension Service Director (name, phone, email)	*Dr. Joe Zublena 919-515-2813 joe_zublena @ncsu.edu*
Experiment Station Director (name, phone, email)	*W. David Smith 919-515-2717 wdavid_smith@ncsu.edu*

Personnel

Number of Personnel in Extension (FTE)	*1022*
Number of Personnel in Experiment Station (FTE)	*899*

** Please do not include student employees, graduate assistants or temporary personnel*

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Section 2: Income/Revenue Sources

Income Source	2011 $ Income Received by Extension	Funding Trend for Past 3 Years	2011 $ Income Received by Experiment Stations	Funding Trend for Past 3 Years
Federal Formula Funds	*$12,915,575*	*__Increasing _x_ Stable __Decreasing*	*$4,848,756*	*__Increasing _x_ Stable __Decreasing*
State Appropriations	*$40,997,109*	*__Increasing __ Stable _x_Decreasing*	*$60,072,015*	*__Increasing __ Stable _x_Decreasing*
Local Government Appropriations (Counties, etc.)	*$27,164,257*	*__Increasing _x_ Stable __Decreasing*	*$*	*__Increasing __ Stable __Decreasing*
Federal Grants and Contracts	*$5,037,288*	*_x_Increasing __ Stable __Decreasing*	*$24,732,332*	*_x_Increasing __ Stable __Decreasing*
State Grants and Contracts	*$1,642,594*	*_x_Increasing __ Stable __Decreasing*	*$8,064,891*	*_x_Increasing __ Stable __Decreasing*
Local Grants and Contracts	*$7,297,405*	*_x_Increasing __ Stable __Decreasing*	*$*	*__Increasing __ Stable __Decreasing*
Industrial Grants and Contracts, including grants and contracts from commodity groups	*$949,054*	*_x_Increasing __ Stable __Decreasing*	*$4,659,715*	*_x_Increasing __ Stable __Decreasing*
Foundation Grants and Contracts	*$638,787*	*_x_Increasing __ Stable __Decreasing*	*$3,136,346*	*_x_Increasing __ Stable __Decreasing*
All Other Grants and Contracts	*$857,799*	*_x_Increasing __ Stable __Decreasing*	*$4,211,665*	*_x_Increasing __ Stable __Decreasing*
Sales of Products and Services	*$8,481,178*	*__Increasing _x_ Stable __Decreasing*	*$2,218,295*	*__Increasing _x_ Stable __Decreasing*
Intellectual Property Revenues	*$*	*__Increasing __ Stable __Decreasing*	*$596,457*	*__Increasing _x_ Stable __Decreasing*
Gifts	*$6,667,707*	*__Increasing _x_ Stable __Decreasing*	*$6,867,124*	*__Increasing _x_ Stable __Decreasing*
Other	*$67,573*	*__Increasing _x_ Stable __Decreasing*	*$2,367,302*	*__Increasing _x_ Stable __Decreasing*
TOTAL	**$112,716,326**	***__Increasing __ Stable _x_Decreasing***	**$121,774,898**	***__Increasing __ Stable _x_Decreasing***

Are these income/revenue numbers based on a cash or accrual accounting basis? _Cash_____

Income Trends:

During the past five years, what trends have been observed in the funding for extension and experiment station activities? What are key funding challenges? Where have the most notable funding declines or increases occurred?

State and federal base funding reductions have been significant trends for both research and extension Most significant declines have been at the state level

Section 3: Research and Extension Activities

Key Initiatives, Institutes and Programs:

Please provide a description of FIVE key centers, institutes, programs or initiatives that are true signatures of experiment station and extension work at your institution. Here we are looking for descriptions of initiatives, centers, programs, etc. for which your university is internationally or nationally well-recognized as a leader.

1. Center for Environmental Farming Systems (CEFS)
2. Plants for Human Health Institute (PHHI)
3. Center for Integrated Pest Management (CIPM)
4. Center for Turfgrass Environmental Research and Education (CENTERE)
5. Center for Plant Breeding and Applied Genomics

Special Research and Extension Infrastructure

Please provide a description of FIVE special assets or infrastructure investments that support agbioscience and related development at your institution. Examples might include pilot plant facilities, unique scientific research infrastructure, biosecurity facilities, camps, etc.

1. Lake Wheeler Road Research, Teaching and Extension Field Lab: (feed mill, structural pest training facility, land application training center, dairy enterprise, waste procession facility, swine, poultry & aquaculture facilities.
2. Atomic Level Imagining Facilites: NMR, mass spec, etc.
3. J.C. Raulston Arboretum
4. NCSU Phytotron
5. Food,Bioprocessing and Nutrition Sciences Pilot Plant

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Most Notable Assets, Centers, Programs or Initiatives by Category

For each of the areas of focus listed below, please provide what you consider to be the top TWO most notable strengths (programs, assets and infrastructure, centers, etc.) of your institution **:**

Plant Sciences, Crop Science, Plant Genetics and Agronomy

1. Plant Breeding and Quantitative Genetics
2. Plant Protection (Entomology, Pathology, Weed Science)

Animal Sciences, Animal Health, Livestock

1. Integrated Swine & Poultry Systems (nutrition, physiology, genetics & health)
2. Feed Mill (Feed Science and Feed Milling)

Food Science, Food Product Development, Advanced Nutrition and Health Products

1. Center for Aseptic Packaging
2. Plant for Human Health Institute

Food Safety and Biosecurity

1. HACCP (MarketReady and other programs)
2. Norvirus Collaborative

Industrial Bioeconomy, Biofuels, Biobased Chemicals, Biobased Materials and Fibers

1. NC Biotechnology Education Center
2. Biobased Chemicals (Fuels, insecticides, herbicides & nutraceuticals)

Environmental Sciences, Natural Resources, Sustainability

1. Water Quality Group (water quality & conservation)
2. Wildlife Cooperative

Agritourism and Recreational Hunting and Fishing

1. NC Hospitality Program
2. Touristry and Poverty Elimination Program

Family Development

1. Nutrition and Food Safety Education
2. Energy Consumer Education

Youth Development

1. Leadership, Citizenship Development
2. 4-H Curriculum and Subject Matter/STEM Leadership and Support

Community and Economic Development

1. Creativity – An Assets Based Approach to Community Development
2. Assessment & Planning Process for Community Food Systems

Other, including multi-focus:

1. Engineered Fish Farming Systems
2. Center for Environmental Farming Systems
3. Collaboration with State Climate Office

4. College of Agriculture and Life Sciences Agricultural Leadership Development Program

Intellectual Property

	2009	2010	2011
# of Invention Disclosures	*30*	*39*	*36*
# of Patents Applied For	*68*	*73*	*62*
# of Patents Awarded	*42*	*37*	*27*
# of Licenses Executed	*62*	*37*	*39*
# of Business Start-Ups	*0*	*0*	*2*
# of Plant Variety Protection Certificates Applied For	*1*	*1*	*2*
# of Plant Variety Protection Certificates Awarded	*0*	*1*	*1*
$ Value of Income received from Plant Variety/Germplasm Development	*$1,081,219.28*	*$916,202.75*	*$1,030,044.43*
$ Value of Income received from all other Intellectual Property	*$3,099,214.44*	*$3,191,362.37*	*$3,707,465.53*

Company Spin-Offs and Commercialization

Please provide examples of any start-up companies located in your state or the southern region that resulted from research discoveries, innovations or technologies developed at your institution in the past 10 years:

Aseptia, Inc., Raleigh, NC – microwave food processing technology
AgroFresh, Philadelphia, PA, commercialize MCP-1 for inhibition of ethylene action
Yamco, Snow Hill, NC, pressure-controlled apparatus for continuous flow of superheated material (sweet potato puree)
LipoScience, Raleigh, NC, provides diagnostic tests for heart disease and diabetes
NanoVector, Inc., Raleigh, NC, regulate and temporarily control gene expression in plants
BioResource International, Inc., Morrisville, NC, hydrolyzed feather-lysate in animal feed

High Impact Innovations and Technology Development

Please provide FIVE examples of innovations or technology developments that have had a substantial impact on the field of agbioscience and/or associated agbio industries in the past 10 years. Examples might include crop varieties with enhanced yield characteristics, new processes or technologies introduced that significantly enhance productivity in industry, etc.

Plant derived, less toxic, Insect repellent & herbicides
Ornamental Horticultural Crops (ornamental sweet potatoes, flowers, grasses, trees & shrubbery
Microwave sterilization coupled with aseptic packaging technologies for food preservation
Keratin digestion technology (feather meal)
Probiotics for Human Health

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Additional comments or items of note regarding experiment station and extension impacts:

Energy efficiency & utility of tobacco curing barns, *Commercial sweet potatoes (breeding, culture, processing, marketing, & utilization)*

Section 4: Extension Service Programs

Statistics: please provide basic metrics and statistical information for extension:

Metric	Number
Number of county/parish offices	*101*
Number of multi-county/multi-parish regional offices	*2*
Number of major 4H camps	*6*
Number of 4H participants	*235,025*
Number of contacts with clients recorded by extension for the most recently completed year (include professional and volunteer contacts)	*1,854,141 face-to-face* *4,586,751 non face-to-face** **does not include mass media contacts*
Number of volunteers for the most recently completed year and number of hours volunteered	*46,081* *802,887*

Please provide selected examples of notable/high impact projects or programs of extension that you would like considered for inclusion within the Battelle report. Please give consideration to including both rural and urban programs.

Business Development Programs/ Impacts

Economic Voice: Dr. Walden uses the print media, airwaves, as well as in-person presentations to keep stake-holders up-to-date on economic conditions and issues in the state. It is estimated these efforts reach 1 million persons each year. **NCJUMP** (*N*orth *C*arolina *J*ustification for Incentives *M*oney *P*rogram: An analytical computer model developed by NCSU and used by the N.C. Department of Commerce to evaluate the prospective benefits and costs of public incentives funds to attract economic development. The model has been used in justifying the use of incentives funds resulting in over $1 billion of investments in the state during the last decade.

Community Development Programs/ Impacts

Creativity- An Assets Based Approach to Community Development:

Family and Consumer Science Programs/ Impacts

JUNTOS- Drop out Prevention Program, Military Family Support, Family Resource Management, Gerontology, Professional Development, EFNEP, SNAP-ED

4-H and Other Youth Development Programs/ Impacts

Volunteer development and administration, Military youth/Family Support, Youth Programming Evaluation, Professional Development, Youth Entrepreneurship

Other high impact/notable Extension programs

Natural Resources Leadership Institute *Water Quality Network* *Entomology Bug Fest for kids* *Citizen Science Program* *Center for Applied Aquatic Ecology -Floating Classroom* *NC Turf Files* *Shared Faculty with NC Museum of Science* *ASPIRE program (College Program to improve SAT and ACT scores of future NCSU Students)* *Local Foods Flagship Program*

Additional comments or items of note regarding extension:

Cooperative Extension has tremendous support from our county partners. Financial support usually exceeds $28M/yr

What diagnostic or other service facilities are operated by extension? What is the annual volume of business in number of clients and dollars?

Plant Disease and Insect Clinic (PDIC): 2,900 samples diagnosed/yr.

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Section 5: Off-Campus Experiment and Extension Stations, Research and Extension Farms, and Outlying Research and Extension Centers

Please provide a listing of your off-campus agricultural experiment and extension station locations, including those near the main campus but not on campus, and other key research and extension locations across the state where faculty conduct research and/or extension activities, together with key characteristics or focus areas of each. *Note: please cut and paste table as needed to create enough entry places for all of your experiment station sites.*

Station 1

Station name	*Butner Beef Cattle Field Laboratory*
Location (zip code)	*8800 Cassam Road, Butner, NC 27503*
Size (acres), including owned and long-term leased land	*1,250 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Beef cattle research including nutrition, physiology, cow / calf management and pasture management. Host NCSU Bull Evaluation and sale.*
Notable or unique characteristics or assets	*Nutrition / performance research conducted with 156 Calan gates*
Number of personnel (FTEs)	*9.5 FTE*

Station 2

Station name	*Lake Wheeler Road Field Laboratory*
Location (zip code)	*4201 Inwood Road, Raleigh, NC 27603*
Size (acres), including owned and long-term leased land	*865 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Support of the teaching and research units that are imbedded within this Field Lab. Production of forages, waste management, and facility and grounds maintenance are key areas.*
Notable or unique characteristics or assets	*Hosts an annual Farm Animal Days with over 10,000 in attendance*
Number of personnel (FTEs)	*17 FTE*

Station 3

Station name	*Pamlico Aquaculture Field Laboratory*
Location (zip code)	*2002 Hickory Point Road, Aurora, NC 27806*
Size (acres), including owned and long-term leased land	*172 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Aquaculture research involving many species but with emphasis on white bass, striped bass and hybrid striped bass genetics, development and production.*
Notable or unique characteristics or assets	*Maintains the most genetically diverse population of striped bass in the world*
Number of personnel (FTEs)	*2 FTE*

Station 4

Station name	*Williamsdale Biofuels Field Laboratory*
Location (zip code)	*7624 NC 41S, Wallace, NC 28466*
Size (acres), including owned and long-term leased land	*619 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Research on the production and processing of biofuels crops including oil seed crops and biomass crops*
Notable or unique characteristics or assets	*Partners with the Biofuel Center of NC to aid in economic development of biofuels in Eastern NC.*
Number of personnel (FTEs)	*1 FTE*

Station 5

Station name	*Breeze Farm Extension and Research Facility*
Location (zip code)	*4909 Walnut Grove Church Road, Hurdle Mills, NC 27541*
Size (acres), including owned and long-term leased land	*136 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Serves as an incubator to train aspiring farmers and the public in sustainable and organic agriculture*
Notable or unique characteristics or assets	*Training programs are provided by Orange County Extension*
Number of personnel (FTEs)	*0 FTE*

Station 6

Station name	*Animal and Poultry Waste Management Center*
Location (zip code)	*4051 Chi Road, Raleigh, NC 27603*
Size (acres), including owned and long-term leased land	*5 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Research on utilization and processing of animal waste with an increasing emphasis on energy production and biofuels production*
Notable or unique characteristics or assets	*Facility includes a torrefaction processing unit.*
Number of personnel (FTEs)	*1 FTE*

Station 7

Station name	*Air Quality Unit (USDA)*
Location (zip code)	*3908 Inwood Road, Raleigh, NC 27603*
Size (acres), including owned and long-term leased land	*10 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Research on the effects of ozone, carbon dioxide and temperature on crop growth and performance. Research relates to global climate change.*
Notable or unique characteristics or assets	*Field environmental chambers are utilized to monitor and adjust air quality for whole plant studies.*
Number of personnel (FTEs)	

Station 8

Station name	*Honey Bee Research Facility*
Location (zip code)	*4325 Inwood Road, Raleigh, NC 27603*
Size (acres), including owned and long-term leased land	*5 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Research and teaching on honey bees including pest control, disease control and instrumental insemination. Unit operated by Entomology Department.*
Notable or unique characteristics or assets	*Over 40 hives on site.*
Number of personnel (FTEs)	*1 FTE*

Station 9

Station name	*Beef Cattle Educational Unit*
Location (zip code)	*4505 Mid Pines Road, Raleigh, NC 27603*
Size (acres), including owned and long-term leased land	*110 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Unit serves as a teaching and demonstration unit with the Animal Science Department. This unit is frequently used as a meeting site for groups representing the agricultural community within NC.*
Notable or unique characteristics or assets	*Maintains purebred herds of Angus and Hereford cattle*
Number of personnel (FTEs)	*1 FTE*

Station 10

Station name	*Dairy Education Unit*
Location (zip code)	*301 Dairy Lane, Raleigh NC 27603*
Size (acres), including owned and long-term leased land	*389 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*A teaching, demonstration and research unit operated by the Department of Food, Bioprocessing and Nutrition Sciences.*
Notable or unique characteristics or assets	*Maintains a milking herd of about 160 registered Holstein and Jersey cattle. New milking parlor opened in 2012.*
Number of personnel (FTEs)	*6 FTE*

Station 11

Station name	*Feed Mill Field Laboratory*
Location (zip code)	*4001 Chi Road, Raleigh NC 27603*
Size (acres), including owned and long-term leased land	*5 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Research and teaching unit specializing in production of research feeds and unique formulations. Unit is operated by the Poultry Science Department.*
Notable or unique characteristics or assets	*Capacity to develop a variety of feed types in either small quantities or in bulk.*
Number of personnel (FTEs)	*2 FTE*

Station 12

Station name	*Chicken Educational Unit*
Location (zip code)	*4108 Lake Wheeler Road, Raleigh NC 27603*
Size (acres), including owned and long-term leased land	*17 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Research and teaching unit operated by Poultry Science with an intensive and broad spectrum research program.*
Notable or unique characteristics or assets	*For bio- security reasons, the teaching flock and classroom building are located at 3841 Inwood Road.*
Number of personnel (FTEs)	*4 FTE*

Station 13

Station name	*Turkey Educational Unit*
Location (zip code)	*4601 Inwood Road, Raleigh NC 27603*
Size (acres), including owned and long-term leased land	*10 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Turkey research unit operated by Poultry Science that has capacity to conduct research on over 6,000 turkeys per year,*
Notable or unique characteristics or assets	*Offers a variety of research environments including industry type facilities.*
Number of personnel (FTEs)	*2 FTE*

Station 14

Station name	*Small Grain Breeding area (USDA-ARS)*
Location (zip code)	*3512 Mid Pines Road, Raleigh NC 27603*
Size (acres), including owned and long-term leased land	*4 acres plus additional crop land*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Plant breeding program directed at small grains including wheat, barley and oats.*
Notable or unique characteristics or assets	*A USDA research program*
Number of personnel (FTEs)	

Station 15

Station name	*Soil and Water Technology Center / Land Application Facility*
Location (zip code)	*4000 Chi Road, Raleigh NC 27603*
Size (acres), including owned and long-term leased land	*15 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Teaching and demonstration unit operated by Soil Science. Areas of focus include septic system design and installation, waste applications, soil erosion control system.*
Notable or unique characteristics or assets	*Conducts workshops and seminar for professional development and continuing education.*
Number of personnel (FTEs)	*1 FTE*

Station 16

Station name	*Structural Pest Training Facility*
Location (zip code)	*3996 Chi Road, Raleigh NC 27603*
Size (acres), including owned and long-term leased land	*0.5 acre*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Educational and training facility operated by the Entomology Department to train industry representatives in structural pest control.*
Notable or unique characteristics or assets	*Site offers examples of different types of building foundations for use in termite treatment demonstrations.*
Number of personnel (FTEs)	*0 FTE*

Station 17

Station name	*Swine Educational Unit*
Location (zip code)	*3901 Inwood Road, Raleigh NC 27603*
Size (acres), including owned and long-term leased land	*13 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Research and teaching unit operated by Animal Science with 120 sows and a farrow to finish operation.*
Notable or unique characteristics or assets	*Operation includes bio-medical research involving collaborations with the Vet School and various research hospitals*
Number of personnel (FTEs)	*3 FTE*

Station 18

Station name	*Turfgrass Field Laboratory*
Location (zip code)	*3920 Dr. Bill Gilbert Way*
Size (acres), including owned and long-term leased land	*30 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Research and teaching unit operated by Crop Science hosts research in all areas of turfgrass management. This unit has the equivalent area in greens as a 18 hole golf course would have.*
Notable or unique characteristics or assets	*Recently expanded into turfgrass breeding.*
Number of personnel (FTEs)	*2.5 FTE*

Station 19

Station name	*Fike Agronomy Teaching Field Lab*
Location (zip code)	*3014 Mid Pines Road, Raleigh NC 27603*
Size (acres), including owned and long-term leased land	*5 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Teaching and extension unit operated by Crop Science and designed to give students hands on experience with crops.*
Notable or unique characteristics or assets	*Demonstrations available on a wide variety of crops.*
Number of personnel (FTEs)	*0 FTE*

Station 20

Station name	*Agro ecology Education Farm*
Location (zip code)	*4400 Mid Pines Road, Raleigh NC 27603*
Size (acres), including owned and long-term leased land	*12 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Teaching and demonstration unit operated by Crop Science with an emphasis on sustainable and organic production*
Notable or unique characteristics or assets	*Site can be accessed by a walking trail from Historic Yates Mill Pond Park.*
Number of personnel (FTEs)	*0 FTE*

Station 21

Station name	*Equine Education Unit*
Location (zip code)	*5100 Reedy Creek Road, Raleigh NC 27607*
Size (acres), including owned and long-term leased land	*115 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Teaching, research and extension unit operated by Animal Science. Program encompasses all major areas of equine management.*
Notable or unique characteristics or assets	*The unit maintains two horse herds, one for teaching and demonstrations and one herd for research.*
Number of personnel (FTEs)	*1 FTE*

Station 22

Station name	*Small Ruminant Educational Unit*
Location (zip code)	*2200 Trenton Road, Raleigh NC 27607*
Size (acres), including owned and long-term leased land	*40 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Teaching, research and extension activities focused on goats and sheep. Unit is operated by Animal Science.*
Notable or unique characteristics or assets	*The first polled Dorset ram was developed at this facility.*
Number of personnel (FTEs)	*1 FTE*

Station 23

Station name	*Metabolism Educational Unit*
Location (zip code)	*2005 Trenton Road, Raleigh NC 27607*
Size (acres), including owned and long-term leased land	*14 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Teaching and research unit operated by Animal Science with a focus on forage utilization and metabolism by ruminants.*
Notable or unique characteristics or assets	*Unit offers 24 Calan gates for cattle, 8 crates designed for digestion studies and 52 pens for small ruminants. Also houses two cannulated steers.*
Number of personnel (FTEs)	*1 FTE*

Station 24

Station name	*Horticulture Field Laboratory*
Location (zip code)	*4301 Beryl Road, Raleigh, NC 27636*
Size (acres), including owned and long-term leased land	*38 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Research, teaching and extension unit operated by the Horticultural Department. Includes greenhouses, lath houses and container beds in addition to field areas.*
Notable or unique characteristics or assets	*Contiguous with the 8 acre J.C. Raulston Arboretum which is open to the public.*
Number of personnel (FTEs)	*2 FTE*

Station 25

Station name	*Method Road Greenhouses Field Laboratory*
Location (zip code)	*840 Method Road, Raleigh, NC 27607*
Size (acres), including owned and long-term leased land	*10 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Large greenhouse facility used for research by the Departments of Crop Science, Plant Pathology, Entomology, Soil Science, Genetics, Horticulture Plant Biology and Forestry.*
Notable or unique characteristics or assets	*Has 93,000 square feet of greenhouse space.*
Number of personnel (FTEs)	*3 FTE*

Station 26

Station name	*Border Belt tobacco Research Station*
Location (zip code)	*Whiteville, NC 28472*
Size (acres), including owned and long-term leased land	*101.44 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	*Flue-cured tobacco, Soybeans, Corn, Small grains, Peanuts, Cotton*
Notable or unique characteristics or assets	Soil are uniform in nature and highly characteristic of the Southern Coastal Plain The southern latitude allows for a longer growing season than other research station locations The high humidity and temperatures provide an excellent environment for disease work
Number of personnel (FTEs)	*4*

Station 27

Station name	*Caswell Research Farm*
Location (zip code)	*Kinston, NC 28504*
Size (acres), including owned and long-term leased land	*1166.06 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Soybeans, Corn, Wheat, Organic Production Systems, Sorghum, Native Grasses, Sunflowers, Canola, Rape Seed, Stevia, Weed control in multiple crops
Notable or unique characteristics or assets	Large uniform tracts of highly productive soils provides the capacity to host large scale soybean and corn plant breeding research which has advanced the genetics of those critical crops. Ongoing weed control research is being conducted in both organic and conventional production systems for several crops. Emphasis is being placed on managing herbicide tolerant weeds in several crops. Research is being conducted to develop Organic Production Systems for corn, soybeans, wheat, canola, rape seed, and Stevia. Entomology research on a new invasive soybean pest “Kudzu Bug” Grain production supports animal research units within the research station system.
Number of personnel (FTEs)	*12*

Station 28

Station name	*Cherry Research Farm(Center for Environmental Farming Systems)*
Location (zip code)	*Goldsboro, NC 27530*
Size (acres), including owned and long-term leased land	*2245.01 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Dairy, Beef, Swine, Corn, Soybeans, Cotton, Specialty Crops, Organic Farming, Goats, Wetlands Restoration, Waste Composting, Riparian Buffers
Notable or unique characteristics or assets	Initiation of long term, large scale interdisciplinary research to develop profitable farming systems that protect our environment and enhance rural communities. Location along the banks of the Neuse and Little River provides an excellent opportunity to evaluate the impact of diverse cropping systems on water quality.
Number of personnel (FTEs)	*25*

Station 29

Station name	*Horticultural Crops Research Station*
Location (zip code)	*Clinton, NC 28328*
Size (acres), including owned and long-term leased land	*349.18 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Cucumber, Melons, Sweet Potatoes, Peppers, Corn, Blueberries, Grapes, Strawberries, Watermelon , Tomatoes, Soybeans
Notable or unique characteristics or assets	Largest and most comprehensive cucurbit and sweet potato breeding program and post harvest storage research Lead site for plasticulture and fertigation research important to the future of vegetable production
Number of personnel (FTEs)	*13*

Station 30

Station name	*Mountain Research Station*
Location (zip code)	*Waynesville, NC 28786*
Size (acres), including owned and long-term leased land	*406.75 acres , 3.0 acres – leased*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Specialty Crops, Christmas Trees, Heirloom Tomatoes, Forages, Beef, Wheat, Corn, Burley Tobacco, Alternative Crops
Notable or unique characteristics or assets	Progeny testing on 40+ open pollinated families of Eastern White Pines for the commercial production of timber and Christmas Trees 20 years of continuous entomology studies on the effects of the Balsam Wooly Adelgid Identified as site for organic crop production research in western North Carolina Performance bull testing program and sale which has been improving the genetics of beef cattle herds in WNC for over 30 years.
Number of personnel (FTEs)	*10*

Station 31

Station name	*Oxford Tobacco Research Station*
Location (zip code)	*Oxford, NC 27565*
Size (acres), including owned and long-term leased land	*426.44 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Tobacco, Tobacco Diseases, Tobacco Germplam, Bio-fuel Feedstocks (sunflowers, canola, sesame, camelina, soybeans),
Notable or unique characteristics or assets	Station's 100 year history closely parallels the history of flue-cured tobacco technology Soils are representative of those found in the "Old Tobacco Belt" Critical location for expansion of biotechn ology research with plant proteins Key site for expansion of biofuels feedstock crop research and biodiesel production with recently completed bioprocessing facility
Number of personnel (FTEs)	*12*

Station 32

Station name	*Peanut Belt Research Station*
Location (zip code)	*Lewiston Woodville, 27849*
Size (acres), including owned and long-term leased land	*371.98 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Peanuts, Corn, Cotton, Wheat, Soybeans, Cukes/Melons, Snapbeans, Grain Sorghum, Sage, Fescue, Biofuel Materials, Cole Crops, Organic Field Crops, Peppers, Tomatoes
Notable or unique characteristics or assets	Located in the heart of peanut producing region of North Carolina with soils and weather conditions adapted to the production of peanuts. All peanut varieties released by NCSU over the last 20 years have come from the Peanut Belt Station One of three sites in the state for testing Phosphorus requirements and one of two sites in the state for testing Potassium requirements The NCSU Department of Plant Pathology has monitoring equipment in peanut fields to monitor soil temperature moisture and well as moisture on leaves. This data is coupled with data taken from on site weather station to generate an advisory for local farmers on when to best apply fungicides to their crops.
Number of personnel (FTEs)	*9*

Station 33

Station name	*Piedmont Research Station*
Location (zip code)	*Salisbury, NC 28147*
Size (acres), including owned and long-term leased land	*1036.2 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Poultry, Dairy, Corn, Soybeans, Hay, Small Grain, Wheat, Tomatoes, Strawberries, Cane Berries, Blueberries,High Tunnel Production
Notable or unique characteristics or assets	The only facility with commercial poultry research including work with broiler breeders, broilers, incubation, and commercial layers as well as using spent fowl in medical research to develop an avian model to increase the understanding and ultimate reduction of Ovarian Cancer Dairy facility conducting applied and basic work to increase the efficiencies of dairy production and reduce the impact of the dairy activities on the surrounding area by improving nutrient management
Number of personnel (FTEs)	*30*

Station 34

Station name	*Tidewater Research Station*
Location (zip code)	*Plymouth, NC 27962*
Size (acres), including owned and long-term leased land	*1551.33 acres; 76.04 leased*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Soybeans, Corns, Cotton, Aquaculture, Swine, Beef, Irish Potatos, Rice, Canola, Sweet Sorghrum, Small Grains
Notable or unique characteristics or assets	Broad and flat topography, resulting in a shallow water tables causes soil organic matter to be higher than the majority of soils in the remainder of the State The breeding program for Irish potatoes is conducted at this location including growing of all material and evaluating each entry for yield and quality Rainfall and flat land with a shallow water table dictate that extensive surface drainage is necessary utilizing a system of ditches and canals
Number of personnel (FTEs)	*20*

Station 35

Station name	*Upper Coastal Plain Research Station*
Location (zip code)	*Rocky Mount,NC 27801*
Size (acres), including owned and long-term leased land	*441.92 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Peanuts, Cotton, Soybeans, Corn, Tobacco, Cucurbits, Small Grain,Switchgrass, Trees, Weed Management
Notable or unique characteristics or assets	The range of soil textures from deep loamy sands to sandy clay to silt loams, provide effective evaluation of the efficacy of various herbicides and herbicide combinations leading to the development of highly effective weed management strategies for cotton, corn, peanuts, soybeans and tobacco Abundant water supply, even in times of drought
Number of personnel (FTEs)	*8*

Station 36

Station name	*Upper Mountain Research Station*
Location (zip code)	*Laurel Springs, NC 28644*
Size (acres), including owned and long-term leased land	*452.81 acres; 12.5 - leased*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Beef, Goats, Christmas Trees, Strawberries, Raspberries, Blackberries, Blueberries, Burley Tobacco, Small grains, Mushrooms, Organics, Ornamentals
Notable or unique characteristics or assets	The elevation above 3200 feet provides climatic conditions not available at any other location across the state; High elevation essential for studying Frazier Fir production Current research on day-neutral strawberries and primacane raspberries has allowed agricultural producers in this area to diversify their operations.
Number of personnel (FTEs)	*10*

Station 37

Station name	*Horticultural Crops Research Station*
Location (zip code)	*Castle Hayne, NC 28427*
Size (acres), including owned and long-term leased land	*111acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Blueberries (breeding,diseases, IR-4), Strawberries (breeding,diseases), Grapes(breeding,diseases), Cucumbers(breeding, diseases), Watermelon (breeding, diseases) Woody Ornamentals (herbicide efficacy), Woody Fruit Species, Sea Oats, Coastal Beachgrass
Notable or unique characteristics or assets	Warmer climate, low native soil pH, high water table, high organic matter content and long growing season to support the largest public blueberry-breeding program in the world Climate provides an excellent environment for plant disease evaluations for small fruit varieties
Number of personnel (FTEs)	*5*

Station 38

Station name	*Central Crops Research Station*
Location (zip code)	*Clayton, NC 27520*
Size (acres), including owned and long-term leased land	*488 acres; 25 - leased*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Corn, Tobacco, Soybeans, Cotton, Swine, Melons, Peaches, Apples, Sweet Potatos, Small Grains Squash, Strawberries, Canola, Grain Sorghum
Notable or unique characteristics or assets	Located less than 20 miles from the main campus of North Carolina State University make it a highly assessable teaching platform for research, under-graduate field trips, graduate classes and continuing education programs Soil diversity attracts soil-teaching groups to permanent soil pits
Number of personnel (FTEs)	*17*

Station 39

Station name	*Cunningham/Lower Coastal Plain Research Station*
Location (zip code)	*Kinston, NC 28501*
Size (acres), including owned and long-term leased land	*515.53 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Brambles, Corn, Flue-cured, Burley, and Dark Air-Cured Tobacco, Melons, Watermelons, Sweet Potatos, Lettuce, Cabbage, Squash, Cucumbers
Notable or unique characteristics or assets	High humidity and the slightly higher than average winter temperatures provide an excellent location for disease and insect breeding work in small grain production Greenhouse facilities and station lands are a key component in the identification of high value specialty crops for farmers to use in diversifying operations
Number of personnel (FTEs)	*7*

Station 40

Station name	*Mountain Horticultural Crops Research Station*
Location (zip code)	*Mills River, NC 28759*
Size (acres), including owned and long-term leased land	*377 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Tomatoes, Ornamentals, Apples, Peaches, Blueberries, Brambles, Peppers, Curcurbits, Soybeans, Corn, Aquaculture, Greenhouse Production, Biofuels crops
Notable or unique characteristics or assets	One of the largest greenhouse complexes in the state for conducting research in greenhouse and nursery crops Provide vital service to farmers in Henderson County, which is rank second in the state in cash farm receipts. (1st in vegetables, fruits and nuts; 2nd in greenhouse and nursery crops).
Number of personnel (FTEs)	*14*

Station 41

Station name	*Sandhills Research Station*
Location (zip code)	*Jackson Springs, NC 27281*
Size (acres), including owned and long-term leased land	*516.95 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Peaches, Blueberries, Cotton, Soybeans, Caneberries, Turfgrass, Ornamentals, Peanuts, Sweet Potatoes, Muscadines, Small grains
Notable or unique characteristics or assets	Deep and extremely uniform sandy soils are highly characteristic of the Sandhills region. Soil conditions provide an ideal environment for drought research, as well as nutrient leaching and plant-water relationship trials. The majority of the research at this location is conducted in plant breeding, development of new germplasm with desirable traits such as regional adaptation, and drought tolerance.
Number of personnel (FTEs)	*10*

Station 42

Station name	*Upper Piedmont Research Station*
Location (zip code)	*Reidsville, NC 27320*
Size (acres), including owned and long-term leased land	*815.63 acres; 50.16 leased*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Muscadine Grapes, Burley & Dark Tobaccos, No-till Conservation Corn and Soybeans, Turfgrass, Medicinal Herbs, Beef Cattle, Goats
Notable or unique characteristics or assets	Primary location for burley and dark-air tobacco research. Historic herd of Registered Black Angus Cattle, located on the historic Chinqua-Penn Plantation. The conservation no-till plots are some of the oldest studies of their kind in the Eastern US. A&T State University and UPRS have launched a new small ruminant demonstration and research center located at UPRS.
Number of personnel (FTEs)	*7*

Station 43

Station name	*Umstead Research Farm*
Location (zip code)	*Butner, NC 27509*
Size (acres), including owned and long-term leased land	*4519.55 acres*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Forestry, Water Quality,Bio-fuel Feedstocks, Weed Management, Forage Production
Notable or unique characteristics or assets	Produce of forages for Research Stations and land resource for expansion and support of Beef Research Center Support of biofuels feedstock research at the Oxford Tobacco Research Station Conservation easement to protect Lake Holt and 300 acre easement to protect a large population of the federally endangered Smooth coneflower
Number of personnel (FTEs)	*0*

Station 44

Station name	*On farm Research Trials (with growers)*
Location (zip code)	*North Carolina*
Size (acres), including owned and long-term leased land	*Approximately 40% of applied research projects occur on (Agronomic, Horticultural) grower's farms*
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Crop Production, Insect Management, Disease Management, Weed Management
Notable or unique characteristics or assets	Directly related to growers enterprises and challenges significantly increases research capacity
Number of personnel (FTEs)	*65*

Additional comments or items of note regarding off-campus experiment and extension stations, county offices, etc.:

Center for Marine Science and Technology (CMAST) *Fort Bragg Research & Extension Programs* *Utilities, Lakes and Properties* *NC DOT Rights of Way* *On-Farm Applied Research and Demonstrations*

Section 6: Industry Partnerships

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Please provide a description of FIVE notable partnerships that your experiment station and/or extension service has with industry. Examples might include a joint engineering center with an agricultural equipment manufacturer, plant breeding or transgenics programs with seed companies, bioprocess development with chemical or biofuels companies, food product development with food manufacturing companies, etc.

Provide details on companies, groups of companies, commodity groups etc. worked with, key results achieved and thoughts on benefits provided.

1. S.E. Dairy Foods Research Center
2. Plant for Human Health Institute (Dole, Monsanto, General Mills)
3. Philip Morris International & Altria Tobacco Program Support
4. Food Bioprocessing & Nutrition Sciences Meat Processing Laboratory Collaboration (Smithfield Foods and RDI)
5. Sweet Potato Breeding (Processing, Specialty & Ornamental)

What areas of R&D at your institution do you believe hold the most promise for increasing industry engagement in the next five years?

Health & Nutrition (Probiotics), local foods, sustainable agriculture, Analytics, Ecosystem Services. Risk modeling, and plant breeding

What agriculture, forestry, fisheries or wildlife and natural resource-related industries do you expect to see grow in the southern region during the next five years?

Aquaculture, local foods, agri-tourism, feed grain production, specialty crops, cellulosic biomass and Ag. Biotechnology

Additional comments or items of note regarding industry partnerships:

The future will require deeper and broader Industry partnerships to maintain support

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Section 7: Regional Cross-Institutional & Governmental Partnerships

Please provide a description of FIVE projects, initiatives, centers or programs, etc. that your experiment station and/or extension service is engaged in together with other institutions in the southern region. Examples might include joint initiatives in biofuels development, food safely, biosecurity, rural economic development, etc.

1. Small Fruits Consortium (NC, FL, GA, SC, TN, VA)
2. Apple & Peach Regional Program (NC, TN, SC, GA)
3. Peanut Varity Quality Evaluation Program (NC, SC, VA)
4. Southern Region Aquaculture Center
5. IR-4 Program

What federal agencies do you partner with on major joint projects and programs? Please list the top 3 federal initiatives you are engaged with.

USGS - Climate Center
USDA- APHIS
USDA-ARS
DOD -Department of Defense
DHHS –Department of Health and Human Services
Norovirus Collaborative with FDA

What state agencies do you partner with on major joint projects and programs? Please list the top 3 state agency initiatives you are engaged with.

NCDA & CS NC Department of Agriculture & Consumer Services
DENR (Department of Environment and Natural Resources)
Department of Health and Human Services (DHHS)

Fresh Produce Safety Task Force
Sustainable Local Food Council
Water quality
Eat Less, Move More Youth Obesity Prevention Program

Department of Public Instruction
Department of Health and Human Services
Department of Aging

What do you believe are some of the unique assets of the southern region that make it particularly well-suited to leadership in the 21st Century agbioscience economy?

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Climate & Geographic Diversity
Agricultural Diversity (NC has 90 agricultural commodities)
Strong local presence in each county with Extension
Research Triangle Park Ag. Biotechnology Cluster
Cultural Diversity
Changing demographics (browning and graying)
K-12 Education Challenges
Military presence on base and in National Guard and Reserves
Entrepreneurial, Leadership and Citizenship Development

Additional comments or items of note regarding potential or existing partnerships with other institutions across the southern region:

Regionally shared positions for R&E (Forages, Beef, Dairy)
Plant for Human Health Institute
Food Safety program/expertise sharing

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Section 8: Education and Human Capital Development

Student Population

Number of students graduated in most recent year with Bachelor's degrees in related field of study	*1,191*
Number of students graduated in most recent year with Master's degrees in related field of study	*202*
Number of students graduated in most recent year with Doctorate degrees in related field of study	*72*
Number of students graduated in most recent year with Associates or other less than baccalaureate qualifications in related field of study	*152*

Education and Training Programs

In a science and knowledge-driven economy, skilled human capital is a critically important asset for our states. Please provide details pertaining to education and skills development in the sections below:

New or innovative education programs or degree programs developed (for example: bioprocessing or biorefinery operator training, biosecurity training, education programs in new fields such as functional foods, nutraceuticals, etc.)

BS degree in Bioprocessing
BS degree in Agricultural Sciences
BS degree in Soil and Land Development

Undergraduate Minor in Environmental Toxicology
Undergraduate Minor in Agroecology
Undergraduate Minor in Plant Biosecurity and Regulatory Science
Undergraduate Minor in Wetland Assessment
Undergraduate Minor in Leadership in Agriculture and Life Sciences

Undergraduate Certificate in HACCP/Food Safety Managers Certification Programs
Undergraduate Certificate in Deed Milling
Undergraduate Certificate in Plant Pests, Pathogens & People

Masters degree in Microbial Biotechnology, a Professional Sciences Masters (PSM) program
Masters degree in Crop Management & Improvement, a PSM program

Graduate Certificate in Environmental Assessment
Graduate Certificate in Design & Analysis of Environmental Systems: Watershed Assessment & Restoration
Graduate Certificate in Feed Science

Professional Certification Programs:
Teacher licensure programs for Agricultural Education, traditional and lateral entry
Professional Science Masters degree programs:

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Microbial biotechnology
Nutrition
Crop Management and Improvement

Continuing education programs or training for producers or industry

Professional Certification Programs

Certified Crop Advisor:
Pesticide Applicators:
Certified Plantsman:
Animal waste land applicators:
Septic system installers & inspectors:
Registered landscape contractors:
Registered Landscape technicians:
Certified Volunteer:
Junior Master Gardeners:
Master Gardeners:
Youth "agency appropriate" certified in Babysitter Safety:
Pork Quality Assurance:
Trucker Quality Assurance:
HAACP (Hazard Analysis and Critical Control Points):
Food safety (Serv Safe):
GAP (Good Agricultural Practices):
Child Care:
Hospitality:
Certified Beekeepers:
Farmers certified in Best Management Practices (BMPs):
Adult CPR:
Adult First Aid:
Rain Garden Certification for Landscapers:

Leadership training, including civic, commodity, government, youth, etc.

Natural Resources Leadership Institute,
Agricultural Leadership Development Program,
Youth Citizenship Program,
Youth Extension Service (YES)

Entrepreneur training and other special training or education initiatives

National defense, including National Guard, training or educational initiatives

Military Call Back Program Provide training and expert technical support to Military Civil Affairs units in regard to agricultural and livestock)

K-12 specific educational programs and initiatives

Additional comments or items of note regarding education and training:

Section 9: Into the Future

What key challenges does your institution face in the future:

Top 5 key challenges for the Experiment Station in your state

1. Diverse agriculture requires diverse research (meeting all needs is a challenge)
2. Aging infrastructure and equipment to conduct discovery and translational research
3. Engaging with urban populations as more people move to urban areas
4. Ability to hire, train and retain technical staff
5. Replacing traditional federal support with new private funding

Top 5 key challenges for the Extension Service in your state

1.Budge/finances at state and federal level
2.State and legislative urbanization
3.Meeting needs of Latino audiences & language barriers
4.Hiring and retention of outstanding faculty & staff
5.Impact accountability

What emerging opportunities or trends do you see impacting your institution:

Top 5 emerging opportunities and trends for the Experiment Station

1. Integration of physical and biological sciences to impact food systems
2. Application of analytics and bioinformatics to work with large complex data sets
3. Industry-University Collaborations
4. Internationalization of agricultural production systems, markets and student training
5. Training the next generation of scientists

Top 5 emerging opportunities and trends for the Extension Service

1. Local Foods
2. Food Safety & Security

3. Youth obesity education, prevention and reduction
4. Cellulosic based biofuels
5. Water resources (uses & conservation)

For the southern region overall, what do you see as the top five challenges/issues moving forward

1. Fiscal instability and increased demand for accountability from all sources
2. Urbanization of population & lack of Agricultural understanding or appreciation
3. Adaptation to changing natural environments (water resources, climate and air)
4. Remaining relevant with clientele with respect to needs and technologies in agriculture
5. Competitiveness in attracting and retaining faculty with increasing global demand for scientific researchers and educators.

What are the top five differentiating factors of the southern region in agriculture, agbiosciences, community/family/youth development, etc. What makes the region unique or provides key comparative advantages.

1. Geographic diversity in land, soils and climate
2. Diversity of agricultural commodities and systems
3. Dispersed population: influences on legislative processes and proximity to major markets in eastern US
4. Environmental challenges: water, land & air ecosystems
5. Greater Diversity, intensity and proximity to pest and pathogen challenges

Section 10: Interview Suggestions

Battelle would like to interview some key stakeholders (outside of the land-grant institutions) across the southern region to discuss their perspective on the importance of extension and agricultural research. Please provide the names and contact information for three individuals who you would suggest for interviewing in your state:

Name	*Title*	*Organization*	*Telephone*	*Email*
Mr. Larry Wooten	***President***	***NC Farm Bureau***	***919.782.1705***	***larry.wooten@ncfb.org***
Mr. David Thompson	***Executive Director***	***NC Assoc. of County Commissioners***	***919.715.2893***	*david.thompson*@ncacc.org
Ms. Deborah Johnson	***CEO***	***NC Pork Council***	***919.781.0361***	***deborah@ncpork.org***

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Section 11: Additional Comments

Please provide any additional comments, information, data, case-studies, impact assessment results, etc. that you feel may be useful or relevant for inclusion in this project and resulting report:

Research Triangle Park connection to multi-national Ag Biotech sector.
NC Biotechnology Center advocates for biotechnology, builds partnerships and funds biotechnology projects. E.g. 30:10 initiative to grow Ag biotech industry to $30Bilion in 10 years.