

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 of 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 triggs@battelle.org If you have questions please direct them to Simon at:

Simon J. Tripp
Senior Director
Battelle Memorial Institute
Technology Partnership Practice
6 Jaycee Drive
Pittsburgh, PA 15243
412-276-1986
Cell: 412-523-6895
triggs@battelle.org

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Section 1: Institutional Profile

University Name	Virginia Tech
Extension Service Director (name, phone, email)	Edwin J Jones, 540-231-5299 jacksons@vt.edu ejones1@vt.edu
Experiment Station Director (name, phone, email)	Saied Mostaghimi, 540 231-6336 robinp@exchange.vt.edu smostagh@exchange.vt.edu

Personnel

Number of Personnel in Extension (FTE)	563.76
Number of Personnel in Experiment Station (FTE)	406.28

* 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	\$ 9,084,554	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$6,006,787	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing
State Appropriations	\$33,140,940	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input checked="" type="checkbox"/> Decreasing	\$32,693,154	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input checked="" type="checkbox"/> Decreasing
Local Government Appropriations (Counties, etc.)	\$13,909,759	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$0	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Federal Grants and Contracts	\$6,955,334	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$32,439,553	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing
State Grants and Contracts*	*\$All non-federal sources are included in category "industrial....combined"	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$\$*All non-federal sources are included in category "industrial....combined"	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Local Grants and Contracts	*\$All non-federal sources are included in category "industrial....combined"	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing	*\$All non-federal sources are included in category "industrial....combined"	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Industrial Grants and Contracts, including grants and contracts from commodity groups, germplasm, non-federal sources combined	\$1,605,029	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$4,414,201	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Foundation Grants and Contracts	\$90,000	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input checked="" type="checkbox"/> Decreasing
All Other Grants and Contracts	\$\$*All non-federal sources are included in "industrial....combined"	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$\$*All non-federal sources are included in "industrial....combined"	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Sales of Products and Services	\$300,276	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$631,065	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Intellectual Property Revenues	\$0	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$940,200	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Gifts	\$463,702	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$1,784,827	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Other	\$	<input type="checkbox"/> Increasing	\$	<input type="checkbox"/> Increasing

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		__ Stable __ Decreasing		__ Stable __ Decreasing
TOTAL	\$65,459,594	v__ Increasing __ Stable __ Decreasing	\$78,909,793	_v_ Increasing __ Stable __ 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?

Between fiscal years 2008 and 2012, the base state funds for VCE and VAES were reduced by a total of 14.3%. In response, VCE embarked on a strategic plan in May 2009, which was completed in the summer of 2010. In early 2011, public displeasure with the restructuring plan resulted in increased state funding levels for VCE for FY 2012. The restructuring plan was abandoned, and VCE was able to hire 34 new county Extension agents and 3 new Extension specialists in 2011-2012.

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.

<i>1. Biodesign and Bioprocessing</i>
<i>2. Infectious disease</i>
<i>3. Agricultural profitability and environmental sustainability</i>
<i>4. Foods, nutrition and health</i>
<i>5. Community viability</i>

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.

<i>1. College farm (3200 acres supporting animal and plant agriculture)</i>
<i>2. The Human and agricultural Biosciences building (92,3000 ft2 of research and pilot-scale facility for food science and biological engineering research and development)</i>
<i>3. Latham Hall, Integrated Life Sciences Building and Fralin Life Sciences Institute-state-of-the-art research facilities for the life sciences</i>
<i>4. A comprehensive system of eleven state-wide Agricultural Research and Extension Centers and 107 Extension Offices throughout the State and six 4-H Educational Centers</i>

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5. Access to world class bioinformatics facilities and support

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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. *Small grains and soybean breeding programs*

2. *Turf grass research center*

Animal Sciences, Animal Health, Livestock

1. *Biosafety level 2 animal research facilities*

2. *A ewe flock, swine herd, turkey center, an equine center and a cow-beef herd*

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

1. *Enology and viticulture*

2. *Translational obesity research (a partnership with Carillion Clinic)*

Food Safety and Biosecurity

1. *Detection and control of food borne illnesses*

2. *Bilingual food safety training*

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

1. *Biomass conversion to biofuels, metabolic engineering*

2. *Biobased materials and drug delivery*

Environmental Sciences, Natural Resources, Sustainability

1. *Real Forestry for Real Estate program offered to real estate professionals throughout Virginia with the goals to increase the awareness of real professionals about the importance of the forest land they are selling, and to introduce them to sources of assistance for their clients.*

2. *Center for Watershed Studies*

Agritourism and Recreational Hunting and Fishing

1. *Agritourism operations adopted new technologies in advertising*

2. *VCE provided the VA Department of Game and Inland Fisheries with the first ever user assessment of its Wildlife Management Areas (WMA) resulting in improved management plans for the WMAs.*

Family Development

1. *Securing healthy financial futures for Virginia families and individuals through family financial management courses*

2. *More than 100,000 low-income individuals changed behaviors that improved their food resource and nutrition management practices.*

Youth Development

1. *Six 4-H Educational Centers supporting more than 27,000 youth in 4-H Camping programs*

2. *13,286 4-H Volunteers contributing 505, 279 hours*

Community and Economic Development

1. *Leading efforts to develop community-based food systems and farm-to-table infrastructure*

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2. Building leadership skills in rural communities through a program called Innovative Leadership: Building Community Connections

Other, including multi-focus:

1. Infectious disease

2. Nanotechnology

Intellectual Property

	2009	2010	2011
# of Invention Disclosures	11	17	17
# of Patents Applied For	16	91	18
# of Patents Awarded	5	10	6
# of Licenses Executed	3	3	7
# of Business Start-Ups	None	1	1
# of Plant Variety Protection Certificates Applied For	4	4	1
# of Plant Variety Protection Certificates Awarded	3	2	None
\$ Value of Income received from Plant Variety/Germplasm Development	\$630,300.19	\$522,638.73	\$644,739.12
\$ Value of Income received from all other Intellectual Property	\$363,269.00	\$2,093,441.00	\$359,216.00

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:

Faculty-owned companies:

Gate Fuels, Inc. (VT faculty Percival Zhang is founder and chief scientific officer)

Licensed technologies:

Consolidated bioprocessing (CBP) based on *Clostridium thermocellum* – licensed by Mascoma Co.

Cellulose solvent- and organic solvent-based lignocellulose fractionation (COSLIF) – licensed by Biomethodes/Optafuel, who are currently constructing a pilot plant

Other:

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Eastern Bioplastics, LLC – formed based on research of VT faculty member Justin Barone; Justin is an equity partner and chief engineer – the company has a factory in Mt. Crawford, VA and has development partnerships with several large companies. The company currently has 7 employees and is planning on building a second factory.

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.

Development of processes to create Hydrogen from Biomass
A mobile unit developed for conversion of Poultry waste to bio-oil and Char
Development of bioplastics from chicken feathers
Development of seven hulled and three hullless barley varieties and 60 wheat varieties including 52 soft red winter, two soft white winter, four hard red winter, and two winter durum wheat varieties have been developed and released by Dr. Griffey. These efforts have brought more than \$3.3 million in sponsored research awards and almost \$8 million in royalties to Virginia Tech. The VT wheat varieties are now grown in 16 states and the barley varieties in eight states.
Development of new peanut lines
Development of pasture-based beef system
Introduction and promotion of hair sheep for SW Virginia
Development of vaccines for animal health

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

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Section 4: Extension Service Programs

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

Metric	Number
<i>Number of county/parish offices</i>	107
<i>Number of multi-county/multi-parish regional offices</i>	40 (Offices where Agents serve multiple counties)
<i>Number of major 4H camps</i>	6
<i>Number of 4H participants</i>	184,711
<i>Number of contacts with clients recorded by extension for the most recently completed year (include professional and volunteer contacts)</i>	2,386,369
<i>Number of volunteers for the most recently completed year and number of hours volunteered</i>	29,964

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

GAP (Good Agricultural Practices) training has been developed and provided to 290 farm operators. As a result of VCE efforts, growers will be able to sell GAP Certified produce in Virginia and other adjoining Mid-Atlantic states. It has been estimated that Southwest Virginia fruit and vegetable growers alone will produce and sell product valued at over \$10 million dollars annually.

Through formal training involving Extension specialists, agents, and industry partners the Virginia Beef Quality Assurance Program (BQA) educates and certifies beef producers in best management practices that improve the safety and quality of beef. During 2011 there were 523 producers certified or re-certified. These producers represent over half of the beef produced in Virginia, and added value of cattle produced on BQA certified farms is estimated to be \$1.5 to \$2.0 million annually.

The VCE-led Virginia Quality Assured (VQA) Feeder Cattle marketing program has consistently brought higher prices when compared to traditional state-graded livestock sales.

Freshwater shrimp pond production continues to expand and has been shown to be a viable alternative agriculture operation stimulating rural economies throughout the Commonwealth.

Community Development Programs/ Impacts

VCE's leadership development curriculum, Innovative Leadership: Building Community Connections, enabled 58 individuals to build their leadership skills; increase their awareness of community issues; network with other leaders; and become more engaged in community, civic, and governmental activities.

VCE facilitated the development of Virginia's first food security plan. The Virginia Farm to Table Plan includes 38 recommendations for strengthening Virginia's food system and economic future. Eight recommendations were identified as key priorities for immediate implementation and action. These eight priority recommendations and the draft Virginia Farm to Table Plan were vetted further at the 2nd Virginia Food Security Summit, where 324 people participated. These results and the Plan will be shared and disseminated to farmers, food system stakeholders, and key decision-makers.

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Family and Consumer Science Programs/ Impacts

Over 700 individuals participated in VCE's FIT Extension Program, with many changing eating and physical activity behaviors resulted in lower healthcare costs.

VCE's Steps for Financial Success program offered 27 classes and had 265 participants complete the class. Post-surveys found that 75% created a budget and established an emergency fund.

4-H and Other Youth Development Programs/ Impacts

Working with elementary school teachers, professional collaborators, and volunteers, Virginia 4-H has provided STEM programming to approximately 33,000 youth through school enrichment, camping, and 4-H Clubs. Consistent emphasis has been placed on content knowledge, skills, aspirations, and attitudes.

Other high impact/notable Extension programs

The Virginia Household Water Quality Program provides assistance to private water system users through county-based drinking water clinics in 12-16 counties each year.

Additional comments or items of note regarding extension:

Development and delivery of a bilingual food safety, seafood processing program

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

Soil Testing Lab in Fiscal Year 2011- 12,236 clients for 54,213 soil samples, which generated \$137,808 in revenue; The Insect ID lab - 1120 samples for 1017 clients; Plant Disease Clinic - 1275 samples in 2012. We also had 114 phone, 71 email and 89 digital diagnosis inquiries; The Extension Weed Clinic served 325 clients in 2011.

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. *Number of personnel includes faculty, staff and wage employees but not graduate or other student employees*

Station 1

Station name	Shenandoah Valley Agricultural Research and Extension Center
Location (zip code)	24476
Size (acres), including owned and long-term leased land	849 (as of 1/1/2012)
Key focus area(s) (e.g.	Pasture based beef, teff, sheep production, ram performance testing,

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<i>poultry, crop demonstration, etc.)</i>	<i>breeding</i>
<i>Notable or unique characteristics or assets</i>	<i>Memorial historic site and tribute to Cyrus McCormick and family Infrastructure for controlled grazing studies</i>
<i>Number of personnel (FTEs)</i>	<i>6</i>

Station 2

<i>Station name</i>	<i>Middleburg Agricultural Research and Extension Center</i>
<i>Location (zip code)</i>	<i>22117</i>
<i>Size (acres), including owned and long-term leased land</i>	<i>420</i>
<i>Key focus area(s) (e.g. poultry, crop demonstration, etc.)</i>	<i>Equine, nutritional research, active student training program</i>
<i>Notable or unique characteristics or assets</i>	<i>Infrastructure of research extension and equine training</i>
<i>Number of personnel (FTEs)</i>	<i>4</i>

Station 3

<i>Station name</i>	<i>Alson H. Smith Agricultural Research and Extension Center</i>
<i>Location (zip code)</i>	<i>22602</i>
<i>Size (acres), including owned and long-term leased land</i>	<i>124</i>
<i>Key focus area(s) (e.g. poultry, crop demonstration, etc.)</i>	<i>Viticulture, high value horticulture, apples and other tree fruits</i>
<i>Notable or unique characteristics or assets</i>	<i>Lead location for a regional USDA project on grape variety development and viticulture</i>
<i>Number of personnel (FTEs)</i>	<i>38</i>

<i>Station name</i>	<i>Eastern Virginia Agricultural Research and Extension Center</i>
<i>Location (zip code)</i>	<i>22572</i>
<i>Size (acres), including owned and long-term leased land</i>	<i>229</i>
<i>Key focus area(s) (e.g. poultry, crop demonstration, etc.)</i>	<i>Crop breeding, variety testing, fertilization, crop and soil management</i>
<i>Notable or unique characteristics or assets</i>	<i>Test site for small grains and soybean breeding programs and variety trials</i>
<i>Number of personnel (FTEs)</i>	<i>6</i>

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<i>Station name</i>	<i>Virginia Seafood Agricultural Research and Extension Center</i>
<i>Location (zip code)</i>	<i>23669</i>
<i>Size (acres), including owned and long-term leased land</i>	<i>none</i>
<i>Key focus area(s) (e.g. poultry, crop demonstration, etc.)</i>	<i>Seafood safety, aquaculture development, multidisciplinary research and outreach, process engineering, waste management</i>
<i>Notable or unique characteristics or assets</i>	<i>Saltwater recirculating aquaculture facility</i>
<i>Number of personnel (FTEs)</i>	<i>7</i>
<i>Station name</i>	<i>Hampton Roads Agricultural Research and Extension Center</i>
<i>Location (zip code)</i>	<i>23455</i>
<i>Size (acres), including owned and long-term leased land</i>	<i>70</i>
<i>Key focus area(s) (e.g. poultry, crop demonstration, etc.)</i>	<i>Environmental horticulture, nursery, landscape, urban tree care, turf</i>
<i>Notable or unique characteristics or assets</i>	<i>Center for multistate USDA project on the control of water borne pathogens in irrigation systems</i>
<i>Number of personnel (FTEs)</i>	<i>31</i>
<i>Station name</i>	<i>Eastern Shore Agricultural Research and Extension Center</i>
<i>Location (zip code)</i>	<i>23420</i>
<i>Size (acres), including owned and long-term leased land</i>	<i>226</i>

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<i>Key focus area(s) (e.g. poultry, crop demonstration, etc.)</i>	<i>Tomatoes, other vegetables, agronomic crop research, nutrient management, alternative field and vegetable crops</i>
<i>Notable or unique characteristics or assets</i>	<i>Food safety studies relating to field vegetables</i>
<i>Number of personnel (FTEs)</i>	43
<i>Station name</i>	<i>Tidewater Agricultural Research and Extension Center</i>
<i>Location (zip code)</i>	23437
<i>Size (acres), including owned and long-term leased land</i>	453 (as of 1/1/2012)
<i>Key focus area(s) (e.g. poultry, crop demonstration, etc.)</i>	<i>Swine production, field crops including cotton and soybean, small grains, corn, peanuts</i>
<i>Notable or unique characteristics or assets</i>	<i>On-going work in swine physiology and nutrition. Leading site for the PVQE (peanut variety quality evaluation) trials</i>
<i>Number of personnel (FTEs)</i>	43
<i>Station name</i>	<i>Southern Piedmont Agricultural Research and Extension Center</i>
<i>Location (zip code)</i>	23824
<i>Size (acres), including owned and long-term leased land</i>	1182 (as of 1/1/12)
<i>Key focus area(s) (e.g. poultry, crop demonstration, etc.)</i>	<i>Tobacco, small fruits, ruminants, forage crops</i>
<i>Notable or unique characteristics or assets</i>	<i>Recently cleared forest acreage being converted into pasture for ruminant nutrition studies.</i>
<i>Number of personnel (FTEs)</i>	48

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<i>Station name</i>	<i>Reynolds Homestead Forestry Research and Extension Center</i>
<i>Location (zip code)</i>	<i>24082</i>
<i>Size (acres), including owned and long-term leased land</i>	<i>787</i>
<i>Key focus area(s) (e.g. poultry, crop demonstration, etc.)</i>	<i>Forest biology, genetics, timber harvesting, surface mining reforestation</i>
<i>Notable or unique characteristics or assets</i>	<i>The 1843 home of Hardin Reynolds, a National Historic Landmark, is located at this center.</i>
<i>Number of personnel (FTEs)</i>	<i>na</i>
<i>Station name</i>	<i>Southwest Virginia Agricultural Research and Extension Center</i>
<i>Location (zip code)</i>	<i>24340</i>
<i>Size (acres), including owned and long-term leased land</i>	<i>210</i>
<i>Key focus area(s) (e.g. poultry, crop demonstration, etc.)</i>	<i>Hair sheep, cattle management, fescue toxicity and Burley tobacco management</i>
<i>Notable or unique characteristics or assets</i>	<i>Key site for the introduction of meat sheep into SW Virginia</i>
<i>Number of personnel (FTEs)</i>	<i>4</i>

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

In addition VAES and CALS support a fresh water aquaculture center, a crop science center and numerous departmental facilities engaged in research and extension throughout the state.

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.

- | |
|---|
| <i>1. Partnerships between field crops breeding programs, farms and seed companies including Monsanto, Bayer, Syngenta, Montague Farms</i> |
| <i>2. Industrial support for agricultural, packaging and other research, support from Smithfoods, Novozymes and Cargill</i> |
| <i>3. Commodity support of internships and scholarships including an on-going relationship with Dupont Teijin for a technical support coop. agreement</i> |
| <i>4. Industrial consortia and their support of the wood composites center</i> |
| <i>5. Biofuels research, IT and business start-up formation, Powell River Projects work with coal mining companies</i> |

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

<i>Aquaculture, bioenergy crops, specialty and export markets, natural fibers including but not limited to cotton, community based agriculture, value added plant and animal products, urban agriculture and the green industry</i>

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?

<i>Non-food fuel and fiber, diversified small scale agriculture, some niche and organic products, high value commodity agriculture, vertical integration of agribusiness</i>
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Additional comments or items of note regarding industry partnerships:

<i>VT maintains close ties with relevant industrial partners, involving them directly in strategic planning, advisory councils and collaborative ventures.</i>
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<i>Possible growth of international ties and a greater emphasis on high value agricultural export.</i>
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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 safety, biosecurity, rural economic development, etc.

<i>1. DOE Energy Frontiers Research for Lignocellulose Structure and Formation</i>
<i>2. Integrated pest management collaborative research support program</i>
<i>3. USDA funded viticulture research and extension for the establishment of a mid-Atlantic wine industry</i>
<i>4. Peanut Variety Quality Evaluation and other plant variety testing collaborations</i>
<i>5. Oak Ridge Associated Universities and Oak Ridge National Laboratory</i>

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

<i>USDA DOE, Oak Ridge National Laboratory NSF DOD</i>
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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.

<i>Department of Environmental Quality Department of Conservation and Recreation Virginia Department of Health</i>
<i>Department of Agriculture and Consumer Services Department of Forestry Virginia Department of Agriculture and Crop Services</i>

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?

<i>-A strong agricultural heritage and commitment to rural communities -A strong infrastructure enabling applied agricultural research -Agricultural diversity -A region with the second highest potential for biomass production for producing bio energy.</i>

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

<i>-The southern area is home to many active multistate collaborative including soil-based use of residuals and waste water, programs looking at the bioeconomy and bioengineering, variety development, IPM etc. These already existing projects have the potential to grow into more meaningful collaborations over</i>

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time.

Section 8: Education and Human Capital Development

Student Population

<i>Number of students graduated in most recent year with Bachelor's degrees in related field of study</i>	600
<i>Number of students graduated in most recent year with Master's degrees in related field of study</i>	92
<i>Number of students graduated in most recent year with Doctorate degrees in related field of study</i>	47
<i>Number of students graduated in most recent year with Associates or other less than baccalaureate qualifications in related field of study</i>	45

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.)

*New Undergraduate Degrees:
Applied Economic Management
Agribusiness*

*New Undergraduate Majors
Environmental Horticulture
Landscape Contracting*

*New Undergraduate college-wide minors
Civic agriculture and food systems
International agriculture*

*New undergraduate degree options
Food Science and Technology created Food and health option
Human nutrition, foods and exercise created science of food nutrition and exercise option and exercise and health promotion option
Agriculture and extension education created leadership and social change minor
Food science and technology created new certificate programs in hazard analysis critical control points, better process control, and ServSafe*

Food science and technology created new programs in brewing science

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Interdisciplinary graduate programs include programs focused around:

- water quality and Health*
- translational obesity*
- sustainable nanotechnology*
- translational plant science*
- genetics, bioinformatics and computational biology*

In addition, students participate in university wide programs associated with the Institute for Critical Technology and Science and other VT centers

Continuing education programs or training for producers or industry

Beef Quality Assurance program.

Virginia Food Processor Technical Assistance Program

Professional Certification Programs

Private and Commercial Pesticide Applicators Licenses and Recertifications

The Sustainable Forestry Initiative is a certification program that ensures that all wood purchased by participating companies is grown and harvested in a sustainable manner using Best Management Practices (BMPs).

GAP (Good Agricultural Practices) certification program teaches on-farm management practices that improve the safety of fresh fruits and vegetables

ServSafe™ is a nationally recognized certification program that teaches safe food handling practices and helps prevent foodborne illness outbreaks.

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

“Innovative Leadership: Building Community Connections” Program; “Certified County Supervisor Program”; “Strengthening Your Facilitation Skills” Program; PlanVirginia's Certified Planning Commissioner Program; Virginia Networked Education for Municipal Officials;

Entrepreneur training and other special training or education initiatives

“Entrepreneur Express” Program; “Community Food System Explorer”

National defense, including National Guard, training or educational initiatives

4-H Military kids

K-12 specific educational programs and initiatives

Virginia Farm to School Initiative (VCE)

Additional comments or items of note regarding education and training:

VCE conducts numerous programs in conjunction with K-12 related to 4-H, conservation, and agriculture

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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

<i>1. Urbanization including political implications and land use changes</i>
<i>2. Decreasing financial support from federal and state sources</i>
<i>3. The changing face of agriculture and the agribusiness workforce, including demographic issues</i>
<i>4. Balancing the needs of production agriculture, environmental sustainability and community viability</i>
<i>5. A need to maintain relevance by linking more closely with policy, health and economic and other sectors</i>

Top 5 key challenges for the Extension Service in your state

<i>1. Maintaining state and local funding in difficult economic times</i>
<i>2. Measuring and communicating our impacts</i>
<i>3. Educating urban legislators about VCE</i>
<i>4. Reaching out to an increasingly diverse audience</i>
<i>5. Remaining high touch while we become more high tech</i>

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

Top 5 emerging opportunities and trends for the Experiment Station

<i>1. ability to contribute to non-food biofuels and bioproducts initiatives</i>
<i>2. greater participation in community based and niche product agriculture</i>
<i>3. International and value added agribusiness</i>
<i>4. enhanced regional research and development collaboration</i>
<i>5. greater integration of research and extension</i>

Top 5 emerging opportunities and trends for the Extension Service

<i>1. Urban programming becoming more important as population grows in urban areas</i>
<i>2. Distance education is the delivery mode of the future</i>
<i>3. Greater reliance on grants and contracts for funding</i>
<i>4. Need for increased specialization of educators</i>
<i>5. Multi-state programming</i>

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

<i>1. We need to demonstrate our worth to the region if funding is to be maintained</i>
<i>2. We need to better integrate our research, teaching and outreach missions and develop more collaboration among the institutions</i>
<i>3. We can not be everything to everybody and need to better define our core responsibilities</i>

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| <i>4. The group needs to move to a multistate model for research projects and program delivery</i> |
| <i>5. The nature of agriculture is changing and our institutions have to maintain the flexibility to be responsive to future challenges</i> |

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.

- | |
|---|
| <i>1. The southern region still has the ability to deliver comprehensive agricultural programs in support of core commodities</i> |
| <i>2. The 4-H program continues to play a vital role in the vitality of our rural communities by developing youth in leadership, civic responsibility and entrepreneurship.</i> |
| <i>3. The diversity of southern agriculture is a source of future strength</i> |
| <i>4. Weather characteristics and land and water availability is an asset in many southern areas</i> |
| <i>5. Port access provides potential distribution opportunities</i> |

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
<i>Al Glass</i>	<i>VP commodity/marketing</i>	<i>Va. Farm Bureau</i>	<i>804 290 1013</i>	<i>Al.glass@vafb.com</i>
<i>Bruce Beahm</i>	<i>CVIA Foundation Seed Mgr</i>	<i>Virginia Crop Improvement</i>	<i>804-472-3500</i>	<i>bbeahm@rivnet.net</i>
<i>Jason Carter</i>	<i>Ex. Sec.</i>	<i>Va Cattleman's Assoc.</i>	<i>540-992-1009</i>	

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:

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