

## 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 21<sup>st</sup> 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 [tripps@battelle.org](mailto:tripps@battelle.org) If you have questions please direct them to Simon at:

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## Section 1: Institutional Profile

<i>University Name</i>	<i>University of Kentucky</i>
<i>Extension Service Director (name, phone, email)</i>	<i>Dr. Jimmy Henning 859-257-4302 jimmy.henning@uky.edu</i>
<i>Experiment Station Director (name, phone, email)</i>	<i>Dr. Nancy Cox 859-257-3333 ncox@uky.edu</i>

### Personnel

<i>Number of Personnel in Extension (FTE)</i>	<i>1094</i>
<i>Number of Personnel in Experiment Station (FTE)</i>	<i>947</i>

*\* 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	\$11,309,409	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$7,124,990	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing
State Appropriations	\$29,689,473	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input checked="" type="checkbox"/> Decreasing	\$36,076,232	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input checked="" type="checkbox"/> Decreasing
Local Government Appropriations (Counties, etc.)	\$45,219,934	<input checked="" type="checkbox"/> Increasing <input 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	\$4,159,461	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$14,289,251	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing
State Grants and Contracts	\$3,420,612	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input checked="" type="checkbox"/> Decreasing	\$790,358	<input type="checkbox"/> Increasing <input type="checkbox"/> Stable <input checked="" type="checkbox"/> Decreasing
Local Grants and Contracts County Income Account plus local capital and program income	\$113,375	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$30,842	<input checked="" type="checkbox"/> Increasing <input type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Industrial Grants and Contracts, including grants and contracts from commodity groups	\$1,333,599	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$1,865,455	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Foundation Grants and Contracts	\$266,961	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$2,781,168	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing
All Other Grants and Contracts	\$1,951,422	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$1,310,488	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Sales of Products and Services	\$3,478,945	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$7,291,520	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Intellectual Property Revenues	\$0	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$425,900	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Gifts	\$1,541,270	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$16,312,386	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing
Other	\$	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing	\$	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing
<b>TOTAL</b>	<b>\$102,484,461</b>	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing	<b>\$88,299,590</b>	<input type="checkbox"/> Increasing <input checked="" type="checkbox"/> Stable <input type="checkbox"/> Decreasing

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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?

*Uncertain and declining Federal Formula Funds; Declines in federal agency funds for research; Decline in state appropriations; More questions and justification for local funds in Extension; Increased competition for federal grants; Loss of ARRA funds*

## 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. Fine Arts Extension- inaugurated in 2005 in one county and now in four, this program is designed to improve lives and communities through full-time county professionals supported by the UK Fine Arts Dept. and the College of Agriculture*
- 2. CEDIK- Community and Economic Development Initiative of Kentucky – a fully integrated (research, extension, teaching) interdisciplinary program to build strong Kentucky communities, especially by training and empowering county extension professionals.*
- 3. Beef Integrated Resource Management- a public private partnership to support the largest cattle state east of the Mississippi led by an interdisciplinary team of extension faculty*
- 4. Equine Initiative- a suite of integrated programs to support the signature industry of Kentucky and take advantage of forage-based enterprises*
- 5. Food Systems Innovation Center and Sustainable Ag Working Group- a partnership with state government through Governor's Office of Agricultural policy to support >200 Kentucky food processors and entrepreneurs*

### 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. 4-H Camps – Four overnight camping and educational centers that provide youth development experiences for 24,000 annually, including 8,000 at traditional summer camps. One site includes a hotel-quality leadership center.*
- 2. Animal Health Monitoring- Statewide effort with State Veterinarian and Murray State University to create a unique, real-time, syndromic surveillance system for animal health trends. The first of its kind*

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<i>nationally.</i>
<i>3. Official reference laboratories for equine health designated by Office Epizootie Internationale (worldwide)</i>
<i>4. Advanced Genetic Technologies Laboratory, a federal investment in gene sciences that leveraged over \$25 million in competitive funding</i>
<i>5. Biogeochemistry Laboratory to study environmental and ecological effects of nanoparticles</i>

## **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*

<i>1. Grain Crops Academy - ten 4-hour sessions for grain producers focusing on soils, management, storage, technology, and marketing resulting in increased returns on their crops. As a result of participating in the academy, producers are capable of improving their decision-making.</i>
<i>2. Pasture Management- integrated program to serve a forage-heavy state with comprehensive strategies for nutrition, weed management, environmental compliance and variety development. Partnership with USDA-ARS Forage-Animal Production Unit</i>

### *Animal Sciences, Animal Health, Livestock*

<i>1. Beef Integrated Resource Management /Kentucky Beef Network (KBN)- a public-private partnership that leads the beef industry in the southeast. KBN is a for-profit subsidiary of the Kentucky Cattleman's Association.</i>
<i>2. UK-Alltech Poultry Alliance- a public private partnership resulting in industry and academic scientists working seamlessly on research problems; eg. production systems that do not use antibiotics</i>

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

<i>1. Plate it up Kentucky – an educational and marketing collaboration with the Kentucky Department of Agriculture to increase consumer purchase, preparation, and preservation of Kentucky grown and value-added commodities</i>
<i>2. Superfund Research Program- University-wide program led by the College of Ag and funded by the National Institute of Environmental Health Sciences; studies mitigation of environmental contaminants through nutrition and nutrigenomics technologies</i>

### *Food Safety and Biosecurity*

<i>1. Microprocessor Training- Extension-led training on proper food preparation for producers that satisfies the legal requirements needed to sell home grown and processed foods in farmers markets.</i>
<i>2. UK Extension Disaster Education Network (EDEN)Team – tasked to train agents and local emergency management teams on the principles and practices to be followed in developing an emergency management plan for agriculture and how to be prepared for natural disasters</i>

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

<i>1. Marginal and coal-mined land reclamation for biomass- novel programs to reclaim coal-mined land to created forests and biomass production systems</i>
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2. *Bioproducts Pilot Program- a collaboration of plant sciences and engineers to sustainably produce biofuels to support on-site farming operations.*

## *Environmental Sciences, Natural Resources, Sustainability*

1. *Environmental and Natural Resources Initiative (ENRI) - an integrated project involving close collaboration with the state Division of Conservation and Division of Water to improve environmental compliance of animal operations and home owners*

2. *Natural disaster response effort- a college-wide team that works to prepare communities to deal with disasters resulting from all hazards and to assist and coordinate in relief efforts after an event, including providing access to resources of the Extension Disaster Education Network.*

## *Agritourism and Recreational Hunting and Fishing*

1. *Agritourism – educational program to encourage, develop and grow tourism opportunities in Kentucky based on agriculture*

2. *4-H Shooting Sports Program – an introduction to the safe and responsible use of firearms and archery equipment that teaches leadership and responsibility in a non-formal environment*

## *Family Development*

1. *Managing in Tough Times Initiative- A college-wide, interdisciplinary effort to provide assistance to farmers, families and communities in the management of resources*

2. *Family Interaction Laboratory – collects social, neurological and physiological responses from individuals, couples and families as they communicate*

## *Youth Development*

1. *4-H Camps – the signature program of Kentucky 4-H, which provides life experiences for youth ranging from day-long to full week residential camps*

2. *Science, Engineering and Technology/GPS/GIS – hands-on program designed to improve knowledge and skills of the use of science/engineering/technology, including GIS/GPS and to make youth aware of related career opportunities*

## *Community and Economic Development*

1. *Community Economic Development Initiative of Kentucky(CEDIK) – A research, extension and teaching interdisciplinary effort to build Kentucky Communities*

2. *Fine Arts program – using full-time county extension professionals to improve lives and communities using the arts.*

## *Other, including multi-focus:*

1. *Ken-Tenn institute – Building Sustainable Communities (Multi-state program)- a community-driven training program using a conference format, designed for extension professionals, discussing principles, practices and successes of extension community development*

2. *Tri-state Diversity Conference - Hosted by four land grant universities from Indiana, Kentucky, and Ohio, the diversity conference is designed for all wanting to empower greater diversity and cultural understanding within their communities and workplaces, including individuals from the extension, academic, research, K through 12 and elected officials.*

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## Intellectual Property

	2009	2010	2011
# of Invention Disclosures	10	5	2
# of Patents Applied For	5	2	1
# of Patents Awarded	9	5	8
# of Licenses Executed	2	2	0
# of Business Start-Ups	3	1	0
# of Plant Variety Protection Certificates Applied For	0	0	0
# of Plant Variety Protection Certificates Awarded	0	0	0
\$ Value of Income received from Plant Variety/Germplasm Development	\$206,133	\$199,230	\$167,429
\$ Value of Income received from all other Intellectual Property*	\$681,112	\$698,104	\$549,092

\*reflects gross licensing fees collected by the University for IP developed by College faculty

## 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:

1. *Allylix: fragrance and flavor company based on terpene chemistry program of a UK plant scientist; just completed a financing round of > \$18 million and announced its first product, a terpene used in fragrance applications*
2. *Paratechs: started by UK entomologist to produce novel platforms for biorational control and transgenic bioproducts*
3. *Global Ag Risk: international leader on microinsurance for farmers in developing countries; owned by a UK ag economist*
4. *Naprogenix: plant production systems for neurochemicals; partnership between pharmacologist and UK's Kentucky Tobacco Research and Development Center*
5. *Reflectronics: in line process control for food safety concerns; started by a UK agricultural engineer*
6. *Transecurity: a remote sensing application to ensure milk safety during transport from farm to processor; developed by ag engineer and specialist from the Division of Regulatory Services*
7. *Fresh Flavors and Fragrances: novel chemicals from soybean and chia; owned by a plant scientist*
8. *Mosquito Mate: controls insects by releasing sterile male mosquitos; started by a UK entomologist*
9. *Phyllotech: produces anti-fungal agents for crops based on tobacco surface proteins; started by a UK plant scientist in collaboration with UK's Kentucky Tobacco Research and Development Center*
10. *Entrepreneurial Coaches Institute: imparts entrepreneurial skills which have developed actual*

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*businesses in rural areas; started by a UK social scientist*

## **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.

1. Genomic manipulations of lignin biosynthesis for ethanol bioprocessing
2. Derivation of terpene compounds through biotechnology as a potential replacement for petroleum based chemicals (flavors, fragrances, home products)
3. Radiofrequency identification tools to remotely detect health problems in cattle
4. Discovery of the sequence of neurological equine herpesvirus and production of 6 out of 10 prominent equine vaccines
5. Development and release of improved red clover varieties that have increased pasture value by \$250 per acre.

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

*Kentucky 4-H Programming reaches over 200,000 youth annually, representing 25% of youth ages 9 to 19.*

*Each of the 120 counties in Kentucky has a UK Cooperative Extension Office with at least 2 professional educators (agents) per office. Most have 3 or more.*

*The Kentucky Extension Homemaker Association is the largest in the nation, with more than 12,000 members.*

*A partnership with the Kentucky Small Grain Growers Association has created a new method to expedite delivery of improved wheat germplasm to growers compared to traditional methods of plant variety release.*

*Kentucky Extension Homemakers, working in conjunction with FCS agents and the UK Medical Center, have raised more than a million dollars for ovarian cancer screening support and actively encourage and facilitate ovarian cancer screenings by providing transportation to the screening clinic. The clinic waiting room and examination rooms have decorations made and provided by Extension Homemakers to make patients feel a connection to home and to improve their clinic experience.*



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## Section 4: Extension Service Programs

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

Metric	Number
Number of county/parish offices	120
Number of multi-county/multi-parish regional offices	6
Number of major 4H camps	4
Number of 4H participants	204,099
Number of contacts with clients recorded by extension for the most recently completed year (include professional and volunteer contacts)	7,408,327
Number of volunteers for the most recently completed year and number of hours volunteered	33,700

**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*

*Business Retention - A Business Retention & Expansion (BR&E) program helps community leaders and communities work together to identify barriers local businesses face as they try to survive and grow. Provide assistance by helping to form a BR&E Team, create a survey of businesses unique to your local issues, analyze survey results, facilitate meetings to prioritize survey results, and implement a BR&E plan.*

*Kentucky Entrepreneurial Coaches Institute - A nationally recognized program that builds entrepreneurial leaders, advocates and coaches in Kentucky's 41 tobacco-dependent counties as a response to declining tobacco income. Recently, the Coaches Institute has expanded to offer programs to elected officials, elementary and high school students and communities.*

### *Community Development Programs/ Impacts*

*Fine Arts Extension- full-time county extension educators (agents) using the arts to improve lives and communities*

*Kentucky/Tennessee (Ken/Tenn) Institute for Sustainable Communities – A multistate collaboration working on building communities through Cooperative Extension leadership*

### *Family and Consumer Science Programs/ Impacts*

*Operation: Military Kids Family Camp- A three-day overnight camp for injured or wounded military service members and their families, offering opportunities for family team building*

### *4-H and Other Youth Development Programs/ Impacts*

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*Water Pioneers: A youth education program designed to teach youth the importance of water in Kentucky. Combines a residential camping experience and a related and required community service project back in their home communities.*

*Science, Engineering and Technology (SET) for Youth: This 4-H program emphasizes science, engineering and technology through its non-formal, hands-on programs and activities. In the past year, 24,141 4-H youth participated in programs in robotics, biotechnology, geospatial relations, electronics and multi-media. These learning experiences in the sciences are a first step in attracting youth to explore the sciences as a future career option.*

*Other high impact/notable Extension programs*

*Farm Service Agency (FSA) Borrower Training: A 16-hour training to train Farm Service Agency borrowers in farm business planning, financial management, and crop and livestock production practices*

*Additional comments or items of note regarding extension:*

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

*Farm Business Analysis: Kentucky Farm Business Management Program (KFBM) provides a records-based information system to assist Kentucky farmers in best utilizing their resources to accomplish their goals and objectives. This mission is extended to KFBM clientele through direct consultation and to the general population through research, education and extension programs of the University of Kentucky. Income for KFBM was \$255,402 in FY2012.*

## 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	University of Kentucky North Farm
Location (zip code)	40511
Size (acres), including owned and long-term leased land	2400
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Poultry, Dairy, Plant and Soil Science, Entomology, Equine Programs, Alltech public-private partnership; serves Central Kentucky farming systems with a focus on grazing animals
Notable or unique characteristics or assets	500 acre Main Chance Equine Campus; Temperature and precipitation controlled field plots for researching climate change impacts on forages

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Number of personnel (FTEs)	10
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## Station 2

Station name	<i>C. Oran Little Research Center</i>
Location (zip code)	<i>40383</i>
Size (acres), including owned and long-term leased land	<i>1484</i>
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	<i>Beef, swine, and sheep research facilities with some equine research; serves Central Kentucky farming systems with state-of-the-art research facilities for animals</i>
Notable or unique characteristics or assets	<i>Farm is on karst geology and has state of the art research facilities constructed in the last 20 years including an intensive research location at the beef unit including environmentally-controlled housing and facilities for conducting surgery. Serves as a model for environmental compliance in animal agriculture.</i>
Number of personnel (FTEs)	<i>8</i>

## Station 3

Station name	<i>University of Kentucky South Farm</i>
Location (zip code)	<i>40515</i>
Size (acres), including owned and long-term leased land	<i>80</i>
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	<i>Horticulture and organic agriculture; highly popular with extension clientele and host to a thriving undergraduate program in sustainable agriculture.</i>
Notable or unique characteristics or assets	<i>5000 ft<sup>2</sup> of greenhouse space on the farm</i>
Number of personnel (FTEs)	<i>5</i>

## Station 4

Station name	<i>Princeton Research and Education Center</i>
Location (zip code)	<i>42445</i>
Size (acres), including owned and long-term leased land	<i>1278</i>
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	<i>Grain crops research, beef, horticulture, and entomology; serves the western region of Kentucky which is similar to Midwestern grain and animal farming systems</i>
Notable or unique characteristics or assets	<i>35,000 ft<sup>2</sup> research and education building</i>
Number of personnel (FTEs)	<i>15.85</i>

## Station 5

Station name	<i>Robinson Center for Appalachian Resource Sustainability</i>
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Location (zip code)	41339
Size (acres), including owned and long-term leased land	15,095
Key focus area(s) (e.g. poultry, crop demonstration, etc.)	Forestry, horticulture, forages; serves the eastern mountain region with tailored programs in value-added wood processing, small ruminant production, and local food systems. Serves as housing for regional extension programs. Is a nexus for educational activity in the mountain region.
Notable or unique characteristics or assets	14,800 acre forest, wood utilization laboratory, forestry field camp with housing for 40.
Number of personnel (FTEs)	5.85

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

*The UK College of Agriculture is a presence in every county via a physical office, most with excellent educational facilities. One hundred eight of these counties have the support of dedicated levies against personal and real property.*

## Section 6: Industry Partnerships

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.Alltech-UK Poultry Alliance: shoulder-to-shoulder collaboration in a poultry housing facility</i>
<i>2. Alltech Nutrigenomics Alliance: promoting discoveries in several farm animal species and humans</i>
<i>3.Kentucky Beef Network: a for-profit company owned by the Kentucky Cattlemen Association, and Southeast Livestock Network, an affiliated company, to promote remote identification and value-added marketing of beef cattle</i>
<i>4.Global Ag Risk: a social science company internationally recognized for farmer-based microinsurance for crop losses</i>
<i>5.Wheat Science Group: a public-private partnership that took wheat from a minor crop in Kentucky to the 14<sup>th</sup> rank nationally; used new varieties and production systems for double cropping with soybeans</i>

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

*Advanced phytochemical bioproducts  
Biosensing in animal production systems  
Diagnostics and therapeutics in equine  
Advanced materials for firefighters*

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?

*Biomass production using a blend of feedstocks typical of Kentucky's geographical location between the South and Midwest*

Additional comments or items of note regarding industry partnerships:

*With leadership from the College of Agriculture, established a comprehensive master agreement between the University and Alltech. This serves as a model for enabling industry partnerships at UK and potentially other higher education institutions.*

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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. Kenn-Tenn institute – A multi-state collaboration training extension professionals to build sustainable communities</i> |
| <i>2. Forestry – Southern Region Extension Forester and associated educational program</i>                                    |
| <i>3. Tobacco -shared specialists with U. Tennessee</i>   |
| <i>4. Kentucky Mesonet – weather data sharing and analysis among KY universities</i>  |
| <i>5. Beginning Farmer Program – Joint with Kentucky State University</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 – Supplemental Nutritional Assistance Program US Department of Energy USDA-ARS – Forage Animal Production Research Unit USDA/DOE Biomass Program US Dept. of Housing and Urban Development</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 Agriculture, State Veterinarian Office (real time animal surveillance) KY Horse Racing Commission (joint employee, Equine Medical Director) Governor's office of Ag Policy (Extension agents lead the process of local investment of Tobacco Settlement funds devoted to the diversification of agriculture away from dependence on the tobacco enterprise); over \$20 million has been supplied to UK for projects to enhance Kentucky agriculture Division of Conservation (joint employee)</i>
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What do you believe are some of the unique assets of the southern region that make it particularly well-suited to leadership in the 21<sup>st</sup> Century agbioscience economy?

<i>Partnerships through the multistate research programs are already established Human Capital (Research and Extension) Regional Working Groups Agrobiodiversity</i>
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Additional comments or items of note regarding potential or existing partnerships with other institutions across the southern region:

## 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>	537
<i>Number of students graduated in most recent year with Master's degrees in related field of study</i>	59
<i>Number of students graduated in most recent year with Doctorate degrees in related field of study</i>	27
<i>Number of students graduated in most recent year with Associates or other less than baccalaureate qualifications in related field of study</i>	0

### 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.)

*Equine Science and Management- interdisciplinary B.S. program that is one of only 3 stand-alone equine degree programs at land-grants ; Sustainable Agriculture- B.S. program educating students in economically viable agricultural production combined with environmental and social responsibility ; Agricultural Biotechnology-Highly competitive interdisciplinary B.S. program educating student in advanced biosciences*

#### *Continuing education programs or training for producers or industry*

*Horse College: Horse College is a series of five educational sessions for horse owners on the topics of nutrition and feeding, breeding, pasture management, health care, hoof care, facilities, and behavior. As a result of the program, owners learn to improve management practices to more effectively and economically care for their animals.*

*Master Grazer: Kentucky's forage base is underutilized especially as it relates to the 7 million acres of pasture or lands grazed by livestock. The Master Grazer Program is geared toward more efficient utilization of this valuable resource by improving the economics of Kentucky livestock agricultural industries through reduced feeding costs, increasing the amount of available grazing, and increasing stocking rates.*

*Grain Crops Academy: ten 4-hour sessions for grain producers focusing on soils, management, storage, technology, and marketing resulting in increased returns on their crops. As a result of participating in the academy, producers are capable of improving their decision- making.*

*Taking control of your diabetes: The diabetes curriculum, "Taking Ownership of your Diabetes" provides a cost-effective means for individuals to manage their diabetes.*

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*Stand up for Falling: A program that highlights four preventable risk factors for falling: lack of exercise, unsafe home environments, vision problems, and medication usage for adults 65 and older.*

*Tax Preparers' Seminars: Agricultural tax training provided to tax preparers, CPAs, farmers and attorneys.*

## *Professional Certification Programs*

*Master Loggers: The Kentucky Master Logger program provides training for timber harvesting professionals on such topics as environmental protection, safe logging practices, and laws and regulations impacting the timber harvesting industry.*

*Pesticide Safety Education Program – Educational program to teach safe and effective pesticide use*

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

*Kentucky Agricultural Leadership Program: Designed to prepare participants to accept leadership responsibility in agriculture, agribusiness and rural communities by improving communication skills and knowledge of major policy issues facing agriculture and rural communities.*

## *Entrepreneur training and other special training or education initiatives*

*Entrepreneurial Coaches Institute: A nationally award winning program that seeks to build entrepreneurial leaders, advocates and coaches in Kentucky's 41 tobacco-dependent counties as a response to declining tobacco income. Recently expanded to offer programs to elected officials, elementary and high school students and communities.*

## *National defense, including National Guard, training or educational initiatives*

*Operation Military Kids - A collaborative effort with Kentucky's communities to support military children, youth and families impacted before, during, and after deployment. OMK provides support to military families who are geographically dispersed, recognizing that these families have significantly different needs than those families on active military installations.*

*Afghanistan training for National Guard – Providing agricultural training and support for National Guard units that will be providing related assistance during their Afghan deployment*

*Strengthening Military Families Initiative – educational programs and support for military, National Guard and Reserve families across Kentucky*

## *K-12 specific educational programs and initiatives*

*Innovative Technology Experiences for Students & Teachers- teaches Middle and High School teachers how to incorporate computer models into STEM curriculum*

*Additional comments or items of note regarding education and training:*



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Arts in the Community – Fine Arts Extension Program, now present in 4 counties.

## 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. *Infrastructure support for research farms and facilities*

2. *Environmental challenges to animal agriculture*

3. *Pressure from suburban encroachment*

4. *Meeting needs of local and organic agricultural systems*

5. *Keeping an effective workforce*

Top 5 key challenges for the Extension Service in your state

1. *Meeting the needs of urban audiences*

2. *Interfacing with individuals and families using social media*

3. *Developing and maintaining good relationships with local leaders, county government officials, state appropriators, and other stakeholder groups as demands for services increase.*

4. *Dealing with the increasing administrative overhead dealing with the use of volunteers, especially with 4-H programs*

5. *Finding, hiring and retaining quality individuals (county and state level) that have the appropriate background in applied agriculture, family and consumer science, and 4-H youth development.*

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

Top 5 emerging opportunities and trends for the Experiment Station

1. *Consumer demand for known-source, local products and humanely produced food creates a new group of clientele that requires a different means of communicating our activities*

2. *Continuing support for research and demonstration facilities that deliver unbiased results critical to the continued success of our stakeholders*

3. *Increasing public-private partnerships and the need for unbiased party involvement in addressing grand challenges*

4. *Increasing need for flexible crop and animal production systems that can adapt to climate change and extreme weather events*

5. *Continuing to set a national standard for environmentally compliant and humane animal agricultural systems*

Top 5 emerging opportunities and trends for the Extension Service

1. *Increased ability to conduct educational programs at a distance, including growing clientele acceptance of programs offered in this way.*

2. *Innovative programming opportunities such as Fine Arts Extension that are important to communities*

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*and that have the ability to leverage campus expertise from non-traditional areas of the University of Kentucky*

*3. The new paradigm of community development (CEDIK) at the University of Kentucky has resulted in growing understanding of community development by county educators (agents) and a growing capacity for programming.*

*4. The interdisciplinary team model (e.g. Beef IRM, Food Systems Innovation Center, CEDIK, Moneywise) is working and is creating very dynamic and productive working groups.*

*5. Alternative staffing patterns (shared agent, multi-county or area agents) will likely increase as costs (personnel and operating) exceed funding sources.*

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

*1. Serving a role in biofuel development and energy security in a region that includes environments spanning from tropical to midwestern*

*2. Developing more leading agricultural industries*

*3. Mitigating the “wastelands” of southern rural communities, such as by providing greater economic opportunities to marginalized areas.*

*4. Dealing with chronic health problems of the region, such as diabetes, obesity, and cardiovascular disease and even including abuse of prescription drugs*

*5. Helping agriculture adapt to the increasing risks and challenges of producing safe, affordable and available food and sustaining farm operations.*

## **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. Range of climate and diversification of agricultural systems*

*2. Good water supply that does not typically limit agriculture and other rural enterprises*

*3. A well-developed system of information discovery and dissemination that is still trusted, valued and utilized widely by farmers, families and communities.*

*4. Characterized by a large number of small, family farms.*

*5. Large percentage of arable land in close proximity to population centers*

## **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:

<b>Name</b>	<b>Title</b>	<b>Organization</b>	<b>Telephone</b>	<b>Email</b>
<i>Don Halcomb</i>	<i>Owner</i>	<i>Walnut Grove farm</i>	<i>270-776-1810</i>	<i>mdhalcomb@aol.com</i>

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<i>Dave Maples</i>	<i>Executive Vice President</i>	<i>Ky. Cattleman's Association</i>	<i>859-278-0899</i>	<i>dmaples@kycattle.org</i>
<i>Mark Haney</i>	<i>President</i>	<i>Kentucky Farm Bureau</i>	<i>502-495-5000</i>	<i>Mark.haney@kyfb.com</i>
<i>Roger Thomas</i>	<i>Executive Director</i>	<i>Governor's Office of Agricultural Policy</i>	<i>502-564-4627</i>	<i>Roger.thomas@ky.gov</i>
<i>Tom McKee</i>	<i>State Representative</i>	<i>Kentucky State Legislature</i>	<i>502-564-8100 ext. 667</i>	<i>Tom.McKee@lrc.ky.gov</i>
<i>David Givens</i>	<i>State Senator</i>	<i>Kentucky State Legislature</i>	<i>502-564-8100 ext. 624</i>	<i>Not available</i>
<i>Laura Knoth</i>	<i>Executive Director</i>	<i>Ky Corn Growers Association</i>	<i>502-243-4150</i>	<i>laura@kycorn.org</i>
<i>Ginny Grulke</i>	<i>Executive Director</i>	<i>Kentucky Horse Council</i>	<i>859-367-0509</i>	<i>director@kentuckyhorse.org</i>
<i>David Switzer</i>	<i>Executive Director</i>	<i>Ky Thoroughbred Association</i>	<i>859-381-1414</i>	<i>dswitzer@kta-ktob.com</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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