

Research funding tops \$300 million

For the first time, the University of Kentucky's research awards broke the \$300 million mark. Grants and contracts received through the UK Research Foundation for fiscal year 2010 (July 1, 2009, through June 30, 2010) totaled \$337,623,982. This was a 31.5 percent increase over last year's \$256,740,712.

The biggest gains came in the federal funding arena. UK faculty and staff successfully competed for \$227,084,369 in federal grants and contracts. Stimulus dollars, from the American Recovery and Reinvestment Act of 2009, made up \$64.5 million of the federal funding total.

"In these tough economic times, the things that will push UK closer to Top 20 status remain the same — great people, new facilities and leading-edge technology. UK is using these funds to advance its Top 20 research agenda, to attract excellent faculty, and train the next generation of scholars and scientists," said UK Vice President for Research James W. Tracy.

"As excited as I am about the data, I am more excited about what this funding means to Kentucky's economy. Most of those dollars come from out-of-state sources, providing a major boost to the Commonwealth's economy," said UK President Lee T. Todd Jr.

Home-grown energy from Kentucky's marginal lands

UK researchers Seth DeBolt, in the Department of Horticulture, and Michael Montross, in the Department of Biosystems and Agricultural Engineering, have found about 20 percent of the state's land is underutilized, which is twice the global average. Using this land to produce bioenergy crops could help the state become more energy independent.

A total of 4.69 million acres of agricultural land was not used for food production and 740,000 acres of mined lands exist in the state. Growing native grasses, such as eastern gamagrass, switch grass and big bluestem for bioenergy on this land could meet 17.2 percent of the state's energy needs and ultimately help the state become more energy independent.

Calculations for the land's potential for bioenergy crops were based on average yields from seven years of other ongoing bioenergy studies at the university. By performing a thorough life cycle assessment, they were able to determine that the bioenergy produced by crops exceeded the amount of energy needed to produce them.

Project preserves ancient English manuscript

With the help of the UK Center for Visualization, UK Professor William Endres, in the College of Arts and Sciences, traveled to Lichfield Cathedral in Staffordshire, England, to make digital copies of the St. Chad Gospels, written in Latin about 725, as well as a Wycliffe New Testament, illegally copied in 1410.

Endres and his UK crew were joined by a *National Geographic* film crew. "The timing just worked out perfect," he said. "This is an amazing opportunity."

The UK crew was able to digitize both texts during the trip using an advanced multispectral scanning process, and work has begun on the forthcoming *National Geographic* series. "Digitization will allow greater access to the manuscripts for research that wouldn't have otherwise happened," said Endres. "There's no way to stop time, but after this trip, we will have what the pages looked like in 2010 — forever."

Small animal MRI scanner will further medical research

The National Institute for Research Resources, part of the National Institutes of Health, has awarded \$3.2 million in American Recovery and Reinvestment Act of 2009 funding to the University of Kentucky for the purchase and installation of a high-field small animal MRI. The scanner will be available to researchers in April 2011.



The state-of-the-art 7 Tesla Bruker ClinScan instrument will be housed in the UK Magnetic Resonance Imaging and Spectroscopy Center. The scanner will be exclusively dedicated to animal research. It will offer the UK research community unique noninvasive imaging capabilities, including superior spatial and temporal resolution not achievable with existing instruments. Planned research includes:

- Measuring the brain and spinal cord's response to, and recovery from, a variety of peripheral experimental injuries.
- In vivo imaging of tissue implants and axon regrowth.
- Serial monitoring of important indices of cerebral anatomy
- Studying the effects of methamphetamine abuse and ethanol withdrawal
- In vivo characterization of tumor growth and response to treatment of prostate cancer
- Evaluating the anatomy, perfusion, Ca²⁺ influx, metabolism, function, and infarction of a mouse heart
- Imaging of the rat orbital to study the special role of mitochondria in extra ocular muscle
- Evaluating the temporal development of an aneurysm



Compiled from news reports about research at UK.

For more information about research taking place at UK, visit www.research.uky.edu