Millions flow to UK for research

INCREASE IN GRANTS IS PART OF PUSH FOR GETTING UNIVERSITY INTO THE TOP 20

By Sam Baker

HERALD-LEADER STAFF WRITER

In a basement lab beneath the University of Kentucky's sprawling engineering complex, Jennie Campbell, 25, runs tests that will help determine whether Kentucky's biggest bridges could withstand a severe earthquake along the New Madrid fault, which runs through southern parts of the state.

In the next room, Andrew Simpson, 26, uses a wind machine [a.k.a. wind tunnel!] to test the durability of wings that he hopes will be used on unmanned airplanes. The Department of Homeland Security is footing the bill for Simpson's work on planes that could fly into forest fires, patrol borders or fly along pipelines and power lines on the lookout for terrorists.

Funding for this research doesn't come from the state appropriations, tuition payments and donations that keep most UK operations running, but rather from grants to individual scientists for specific projects. Most grants come from the federal government, though state agencies and industry also contribute.

For the 2005 fiscal year that ended in June, UK collected a record $273.9 million in research grants -- 15 percent more than the year before. UK administrators say that helps move the school closer to becoming a top-20 research university.

"It's seen as one of our highest priorities," UK President Lee Todd said.

Suzanne Smith, a professor of mechanical engineering who runs part of the lab where Simpson and Campbell work [Simpson slaves away for Prof. Jacob, however], has been at UK for 15 years and has gotten research funding every year. She started off with a Young Investigator Award to build her expertise, and now gets money from NASA.

Campbell and Sullivan said they feel a direct impact from UK's aggressive -- and successful -- push for more research funding.

"I think that's pretty impressive," Campbell said. "The more and more opportunities students get, the more excited they're going to be about what they do."

About $152 million of the fiscal 2005 research money came from the federal government, a 6 percent increase from the year before. Funding from state agencies jumped 53 percent, to roughly $71 million. That figure is separate from the higher education budget approved by the General Assembly.

The remaining $50.6 million came from non-governmental sources, including industry, non-profit organizations, other universities, foreign governments and other states.

The competition is fierce: As UK's research totals are climbing, schools like the Universities of Michigan and North Carolina are increasing theirs at an even faster pace.

Todd's drive to improve UK's research ranking stems from a belief that the global economy is changing and placing an increasingly high premium on innovation.

"You're no longer going to be able to sit in one place your whole career, in one company," Todd said. "The skills you're going to need to compete are much broader than they used to be."

The fiscal 2005 research total was about $100 million more than that of 2001, when Todd took over. It has increased every year he's been president. Of the 88 public schools to which Kentucky compares itself in its top-20 quest, UK ranks 35th in federal funding, up from 39th in 2001. It ranks 23rd in grants from all other sources, including state government and industry.

UK's emphasis on research follows a national trend, one that critics say creates a diversion from what should be the primary mission of any land-grant university: education. Smith's time is split evenly between research and teaching, which she said is about average for researchers. She teaches two undergraduate classes per semester.

And though proponents of a research focus say lab work affects all undergraduates' education, there are few chances for direct involvement. About 700 of UK's 18,000-plus undergraduates are involved in research, according to Wendy Baldwin, UK's executive vice president of research, a number she called "phenomenal."

She and Todd said they're mindful of those criticisms.

"It's a balancing and rebalancing activity that goes on all the time," Baldwin said. "There's no formula. There's no magic."

Ample space and state-of-the-art equipment are often required to keep the best scientists from moving on to more prestigious jobs. Neither is cheap, and schools usually have to pay for them from their own budgets, rather than external grants.

"It's a classic triumvirate of education, research and serv-ice, and, frankly, we have to do all three," Baldwin said. "If we-didn't have an educational mission, we wouldn't be a university."

A small portion of UK's $274 million falls outside the traditional connotation of "research." The school's art museum, for example, got $130,000 -- a comparatively large sum -- from the Institute of Museum and Library Serv-ices.

The $130,000 grant will fund an exhibition of French landscape paintings gathered from collections in and around Central Kentucky. Only about one in five applications for Institute of Museum and Library Services grants is accepted, and receiving one elevates the UK museum's prestige, said Kathleen Walsh-Piper, the museum's director. Now it can try for money from the National Endowment for the Arts, and maybe after that, some privately administered foundations.

Many people "think of an art museum as entertainment," said Piper. "But keeping and researching and teaching about works of art, and keeping those for the future, are our main functions."

In a University of Kentucky engineering laboratory, Andrew Simpson measured how force from a wind machine deformed a wing. The findings could be applied to future unmanned aircraft. A grant from the Department of Homeland Security is paying for the research.