

Animal science programs suffer as funding declines

By TIM LUNDEEN

EVERYONE needs to do more with fewer resources and needs to come up with creative funding solutions to keep programs running.

Animal and dairy science researchers have long recognized the scientific benefits of using domestic farm animals as research models in the quest to benefit the health of both people and animals.

For example, many critical findings in human reproduction, nutrition and overall human well-being were discovered using domestic farm animals. Although researchers in both agricultural and biomedical research fields understand the benefits of using domestic animals as research models, funding for this kind of research pales in comparison with funding allotted for research using other types of animal models, such as mice, according to an announcement from Michigan State University.

Michigan State animal science professors James Ireland, George Smith and Jose Cibelli and five colleagues from other institutions warned in the recent issue of *Science* that the continuing decline in federal funding for animal and biomedical research jeopardizes animal science studies (*Feedstuffs*, May 4).

In the *Science* article, the researchers noted that although the economic value of livestock and poultry in the U.S. exceeds \$132 billion, only 0.04% (\$32.15 million) of the U.S. Department of Agriculture's budget was allocated to its competitive grants programs for research involving farm animals.

In comparison, they noted that the National Institutes of Health (NIH) budget for human health research is nearly \$30 billion.

Bridging the vast disparity between the total budgets available for research grants

Key Points

- All of animal ag affected by funding decline.
- Animal science doctoral degrees awarded drop 30% in 20 years.
- Animal ag, biomedicine should team up to maximize opportunities.

focused on animal agriculture and human health (about a 900% difference) is the focus of several papers written by the Michigan State professors. They warned that a continuing decline in animal agriculture research funding jeopardizes the entire field of animal science, even down to the producer level.

"Without basic research, we do not have the foundations for the applied research that can benefit livestock producers," Ireland said. "The lack of research funding affects all areas of study, including graduate students, farm operations and animal science faculty at nearly every land-grant university."

For example, the decrease in federal funding for basic research is taking its toll on Michigan State's department of animal science. The number of graduate students in the department fell from more than 100 in the 1980s to 74 in 1992 and to 30 in 2008.

Michigan State is not alone; the trend in declining graduate program enrollment is being seen at universities all across the country. In June 2008, Ireland and his colleagues reported that the number of doctoral degrees awarded in animal science declined 30% from 1985 to 2004.

Other universities have had to reduce or close services. The University of California recently closed its veterinary diagnostic laboratory in Fresno, Cal., and shifted much of the workload to laboratories elsewhere in the state (*Feedstuffs*, June 1).

To help reverse this trend, the Michigan State researchers are working to influence others to take a closer look at the benefits of using domestic animals as research models instead of mice. Currently, 98% of biomedical research is conducted using mice.

"There are numerous examples in the biomedical field that point to the fact that domestic farm animals make better research models," Ireland said. "For example, chickens contract ovarian cancer as humans do; pigs develop chronic diseases such as obesity, ulcers and heart disease, and cows make excellent models for reproduction studies."

Ireland and his colleagues pointed to the fact that 17 Nobel laureates used farm animals as research models. The evolution of genome sequencing — including the landmark bovine genome sequence released in April (*Feedstuffs*, April 27 and May 4) — promises new insights into gene function and genetic and environmental influences on animal production and human disease.

Ireland said maximizing domestic animals as dual-purpose models to solve problems common to both animal agriculture and biomedicine will require changes on both sides.

He suggested that if NIH panels are reviewing grant applications where farm animals will be used, those panels need to include individuals with expertise in that area. Conversely, he challenged colleges of agriculture and veterinary medicine to work more closely with researchers in the broader life sciences community and to pursue more NIH funding.

"The 'protected island fortress' of agriculture, usually located on the 'other side' of campus, is an anachronism that is no longer viable as state and federal support for research with large-animal models declines," Ireland said. ■