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University Becoming Major Center for Swine Research

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Kansas State University is rapidly becoming a major center of vital swine research that also could play a role in human health.

Much of the multimillion-dollar research going on at K-State focuses on infectious and emerging swine diseases, some of which can be zoonotic — spreading from animals to humans and vice versa — like H1N1.

The College of Veterinary Medicine's Raymond "Bob" Rowland, and Dick Hesse, both virologists, and several other K-State researchers are involved with projects that could one day lead to better diagnostic tools and vaccines to control certain swine diseases.

"I think what's really important about the research we do at K-State is the enthusiasm and talent of the people we get to work with, and the diversity of the teams we assemble to solve important animal health problems," Hesse said.

The projects Hesse and Rowland collaborate on or are involved with include:

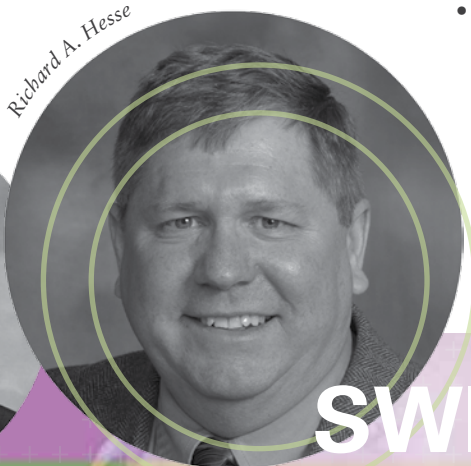
- PRRS Host Genetics Consortium, a first-of-its-kind program for food animal genetics. PRRS stands for porcine reproductive and respiratory syndrome, which costs pig producers an estimated \$700 million a year. The consortium includes K-State, Iowa State University, Michigan State University and Cornell; the U.S. Department of Agriculture's Agricultural Research Services; and private companies and commodity groups. The program looks at the genetics of

infectious disease resistance and susceptibility. "Anyone who makes a contribution to the consortium has access to all the data and samples collected," Rowland said. To date the project has raised \$3.7 million.

- The Porcine Reproductive and Respiratory Syndrome Coordinated Agricultural Project. Based at K-State, the \$5-million, four-year project, supported by the USDA, is a comprehensive national program aimed at controlling the disease.
- Hesse's lab is working on genotypic characterization of bovine viral diarrhea viruses associated with bovine respiratory disease, as well as developing new sequence-based diagnostic and classification assays for bovine and porcine group A rotaviruses, which cause diarrhea in young animals. His lab also is working on a special vaccine development project on the newly emerging group C rotaviruses of nursery pigs.
- Work with several companies on emerging diseases. K-State researchers help isolate infectious agents, and then develop appropriate models that could help lead to the creation of vaccines.
- Porcine circovirus research and vaccine approaches. The work is being done by Hesse in K-State's Biosecurity Research Institute, a biosafety level 3 and biosafety level 3-agriculture research facility. The virus compromises a pig's immune system.
- Developing the next generation of diagnostic tools that are more predictive than reactive. The research includes working with companies to create diagnostics that go beyond telling if an animal is infected, to showing things like the status of the disease and the strength of vaccine protection.
- Collaborating with the Agricultural Research Service's Arthropod-Borne Animal Disease Unit in the Biosecurity Research Institute on projects related to animal diseases, primarily involving vaccines and diagnosis.
- A National Institutes of Health project involving the porcine reproductive and respiratory syndrome virus. "This virus can have interesting models for human infections," Rowland said.

Bob Rowland

Richard A. Hesse



By Beth Bohn, Communications and Marketing

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SWINE RESEARCH