

Experiment Station Section 2008 Excellence in Multistate Research Award

Presented to

NC-229

Porcine Reproductive and Respiratory Disease: Methods for Integrated Control, Prevention and Elimination of PRRS in United States Swine Herds

Joan Lunney, Committee Chair
David A. Benfield, Administrative Advisor

Participating Institutions:

University of Connecticut • University of Illinois • Iowa State University • Kansas State University • University of Minnesota • University of Missouri • University of Nebraska • North Carolina State University • Purdue University • South Dakota State University • Virginia Polytechnic Institute and State University • University of Guelph • USDA-Agricultural Research Service • USDA-National Animal Disease Center

Porcine reproductive and respiratory syndrome (PRRS) was first described in U.S. swine herds in 1987. Sixty percent of U.S. herds are estimated to be infected with the PRRS virus (PRRSV). According to the National Pork Board (NPB), PRRS is the most economically significant disease facing the industry with an estimated cost of \$560 million annually.

The NC-229 Committee was formed in 1999 using a novel "consortium" approach to conduct stakeholder driven "Big Science" on the virology, immunology, epidemiology, diagnostics and control of PRRSV, combining NPB, industry and USDA funds. The complex pattern of PRRSV transmission between herds, the ability to establish a subpopulation of asymptomatic carrier animals, the ineffectiveness of vaccines and lack of economic diagnostic assays makes the prevention, control, and elimination of PRRS a daunting task that is best resolved through a multistate effort, for the first time targeted to just one virus. The objectives in the NC-229 multistate project address stakeholders' needs to implement a program that rapidly and efficiently develops the technology necessary to control and eliminate the virus.

The NC-229 Committee initiated the project "*Integrated control and elimination of PRRSV in the U.S.*" that was the first Coordinated Agricultural Project (CAP) funded by the USDA NRI program. This project was significant, not only in providing \$4.2 million for a multistate committee, but the committee demonstrated superb leadership in bringing academia, NPB, AASV and numerous private industries together to support this coordinated effort towards elimination of PRRS. This collaboration with industry continues and has been expanded with the recent submission of a CAP2 PRRS project to the USDA-NRI for \$4.8 million. The NC-229 Committee has provided continued leadership in keeping stakeholder groups involved and focused on this important goal of

elimination PRRS from the swine industry in the U.S. Stakeholders support CAP projects with additional competitive funds and in-kind donations (animals, diagnostic tests). In addition to the CAP award, NC-229 participants have garnered another \$3 million in grants and contracts from USDA-NRI, institutional grants (not Hatch or Formula), National Institutes of Health, the National and State Pork Producers Councils, and private industry.

This project has had a significant impact on the scientific community and the industry. For example, it has established community resources for participating and other scientists that would not be available through an individual investigator project including the sequence databank; a swine oligonucleotide array; and various viral constructs, monoclonals and polypeptides. The “Big Pig” project has provided 20,000 clinical samples from a universal set of animals to various investigators within and outside of NC-229 for scientific studies. A risk assessment tool was developed to identify factors that place a herd at risk for reintroduction of the virus. This allows swine practitioners a method to identify these risks and implement management strategies to reduce re-infection of “clean” herds.

The NC-229 has been a model of multistate collaboration between institutions, working with stakeholders and providing leadership in partnering with private organizations such as swine breeding companies, diagnostic and vaccine companies and the National Pork Board. It is an excellent product of the Hatch Multistate Research Program.