

**Checkoff Research
Helps Wage
War on**

PRRS

Porcine Reproductive and Respiratory Syndrome (PRRS) is a formidable and costly enemy to fight, but extensive research funded by the Pork Checkoff is helping the pork industry gain ground in the battle against this tenacious virus.

“Thanks to the breadth of the research that has been gathered in recent years, our understanding of PRRS is increasing by leaps and bounds,” said Lisa Becton, director of swine health information and research for the Checkoff.

The PRRS Initiative Research program, supported by the Checkoff’s Swine Health Committee, has funded 123 projects totaling more than \$10 million since 2004. To provide a comprehensive reference on the evolution of PRRS research, the Checkoff recently mailed the 40-page *PRRS Initiative Research 2004-2011* report to producers.

Protecting Swine Health

The report, which can be accessed online at <http://www.pork.org/Research/Default.aspx>, addresses five key areas to help producers develop herd health management strategies, Becton said. These are:

1) Immunology and vaccine development. Work is being done to create alternative approaches for vaccine development and in improving herd health management in herds with multiple health challenges.

2) Epidemiology, risk factors and control strategies. This section offers biosecurity tips to help control PRRS,

such as using filtration to prevent PRRS infection.

3) Diagnostic tests and PRRS surveillance. Great strides have been made by researchers in detecting new and emerging strains of PRRS virus, such as simpler methods of PRRS sample collection and improved diagnostics that provide faster results, Becton said.

4) Regional elimination. Controlling PRRS begins with proven, biosecurity basics, starting with the Production Animal Disease Risk Assessment Program (PADRAP), which helps producers identify the potential risk for getting a disease in their swine herd. This section of the report also addresses the development of a standardized geographical mapping program for herd status.

5) Genetic resistance to disease. Researchers have made a number of advancements in the discovery and verification of genotypes and phenotypes that can predict susceptibility and/or resistance to PRRS infection. The report highlights the ongoing and broad collaboration between researchers from multiple universities, government agencies, swine breeding companies and other organizations who are studying the genetics of disease resistance and overall pig health.

“We’re learning a great deal about how the PRRS virus operates within the pig’s body and evades the immune system, but there’s still a great deal more that needs to be studied,” Becton said. “Continued Checkoff investments in PRRS research is critical for managing this disease.”

New Diagnostic Tests Aid PRRS Surveillance

Simple, effective surveillance methods are critical for the control and elimination of Porcine Reproductive and Respiratory Syndrome (PRRS), and Checkoff-funded research is supporting the continuous development of accurate, timely diagnostics.

“Rapid detection can allow for a quick implementation of a control plan and potentially minimize the unwanted spread of the virus,” said Lisa Becton, director of swine health information and research for the Pork Checkoff. “We are fortunate to have improved diagnostic tests today that offer quicker results.”

New research indicates that using oral fluids as a surveillance tool can be effective in the fight against PRRS.

“This method is starting to be utilized more in the pork industry,” said Becton, who noted that two people are not needed to complete the job, since pigs don’t have to be snared. “Ongoing research indicates that these samples may provide a better measure of herd status within a population than individual blood samples.”



Oral fluid collection is being used as a surveillance tool to help fight PRRS.

New and Emerging Strains?

Research on diagnostic tests and surveillance strategies has not only led to the development of rapid and accurate tests for PRRS, but it’s giving the industry the ability to detect new and emerging strains of the PRRS virus.

For example, researchers are studying genetic material from PRRS virus Type 2 sampled in Vietnam during the Southeast Asian outbreak of porcine high fever disease, which became an issue in 2007. Scientists also are conducting additional studies on the other highly pathogenic isolates of the PRRS virus to determine how these Asian strains are different from other PRRS viruses in the U.S. and why they cause higher levels of mortality.

“We don’t have these Asian strains in the United States, and we want to keep it that way,” Becton said. “Having the ability to detect new and emerging strains of the PRRS virus will help reduce the potential negative impact if such viruses get in the U.S. swine herd.” 🐷



Biosecurity Is Key

Biosecurity is one of the cornerstones of health in any swine production operation, and a good biosecurity program can help control the spread of Porcine Reproductive and Respiratory Syndrome (PRRS).

“There are definite things producers can do to control PRRS from getting in their operation,” said Lisa Becton, director of swine health information and research for the Checkoff.

A good place to start is the Production Animal Disease Risk Assessment Program (PADRAP), managed by Iowa State University and the American Association of Swine Veterinarians (AASV) with support from the Pork Checkoff. PADRAP, found at www.padrap.org/, offers a set of risk assessment questionnaires, databases and reports for measuring and benchmarking swine disease risks.

“Producers, along with their veterinarians, can use PADRAP as a baseline assessment to determine how much risk their operation has,” Becton said.

PADRAP is a PRRS risk assessment that can be used:

- To evaluate current biosecurity protocols and/or to develop new biosecurity protocols to avoid risk.
- To demonstrate improvement in biosecurity over time to help justify expenditure of resources on measures to improve biosecurity.
- As an aid in the decision to initiate a project to eliminate PRRS from a breeding herd site, or to identify modifiable risk factors to increase the likelihood that an elimination project will be successful long-term.

Study Looks at Airborne Spread

To develop strategies to control Porcine Reproductive and Respiratory Syndrome (PRRS), it is important to understand the modes of transmission and know how the PRRS virus spreads between animals and to other herds. As the U.S. swine industry moves toward regional control and elimination of the PRRS virus, a critical component is the ability to reduce the risk of the airborne spread of the virus between herds.

“Filtering incoming air has been proposed as a means to reduce this risk,” said Lisa Becton, director of swine health information and research for the Pork Checkoff. “Filtration can and does work, but it’s not foolproof.”

To test this intervention, a study was conducted utilizing 10 treatment (filtered) herds and 26 (non-filtered) control herds during a 24-month period involving large breeding herds in swine-dense regions.

Throughout the study period, which is documented in the Pork Checkoff’s *PRRS Initiative Research 2004-2011* report, eight of the treatment herds remained free of infection. However, two herds experienced clinical PRRS secondary to the introduction of a new variant of the virus from an external source. The source was contaminated transport in one case and a personnel biosecurity breach in the other.

What Does this Mean to Producers?

Biosecurity measures need to be in place and working effectively on a daily basis before the decision to filter a building should be made.

Thorough evaluation of the design of existing barns and air flow patterns and requirements should be performed before making the commitment to filter a building since not all barns can be practically retrofitted in an economical manner.



What’s Next?

In recent years, Pork Checkoff research has focused on developing tools to support efforts for regional control and elimination of the PRRS virus. The Pork Checkoff is also pursuing additional solutions that take an even broader approach.

“We’re continuing to develop tools to support PRRS elimination, including the development of a standardized geographical mapping program for herd status,” Becton said. If producers are interested in starting a regional elimination project with their neighbors, additional information, such as key contacts, reports of ongoing projects, confidentiality agreements and funding opportunities, can be found at www.prrs.org.

In addition, the Pork Checkoff will continue to invest in research focused on immunology and vaccinology to determine which interventions, including vaccines, can help producers win the battle against PRRS.

“The members of the National Pork Board, the Checkoff’s Swine Health Committee and other pork industry leaders support Checkoff-funded research that benefits the pork industry as a whole by helping to fight PRRS,” Becton said. 🍷



Producers Need Practical PRRS Solutions



"...the Pork Checkoff is involved on the front lines of PRRS research on producers' behalf."

National Pork Board President
Everett Forkner, Missouri

Porcine Reproductive and Respiratory Syndrome (PRRS) remains one of the most costly diseases that producers face. In a recent Checkoff-funded economic assessment, PRRS has been shown to cost the industry over \$664 million a year, which translates to nearly \$115 per sow. National Pork Board President Everett Forkner, a pork producer from Richards, Mo., appreciates the extensive PRRS research that the Pork Checkoff has funded in recent years.

Q: How is PRRS research benefiting the pork industry as a whole?

A: The Pork Checkoff is committed to finding practical solutions to this very complex disease through investments in research. Whether it's looking at the real-time challenges, such as the implementation of regional elimination, or long-term issues, such as determining genetic resistance, the Pork Checkoff is involved on the front lines of PRRS research on producers' behalf.

Q: Why is the PRRS Initiative Research 2004-2011 report useful for producers?

A: The book is a resource of Checkoff PRRS research and helps develop herd health management strategies, from increased biosecurity measures to using simpler methods of PRRS sample collection. As a producer myself, I think you will find this resource useful as a comprehensive reference on the evolution of PRRS research and the strides we've made in understanding this major industry challenge.

Q: How can I stay up to date on what's new in the fight against PRRS?

A: To learn more about PRRS research, download the **PRRS Initiative Research 2004-2011** report or read about other Checkoff-funded research on pork.org.



This is a special-topic newsletter sent periodically to you by the Pork Checkoff

Editor: Jan Jorgensen (515) 223-2644 • Contributing Editor: Mike King • Senior Art Director: Beth Wonderlin

National Pork Board • P.O. Box 9114 • Des Moines, IA 50306

the Pork Checkoff Service Center @ (800) 456-7675 or pork.org



Inside: Checkoff helps wage war on PRRS.