

PRRS Fact Sheet

Porcine Reproductive and Respiratory Syndrome (PRRS) is a production-limiting disease affecting swine, and does not impact food safety or human health.

Virology:

PRRS is an enveloped RNA virus in the family *Arteriviridae* which was first isolated and classified as recently as 1991. The pig, either domestic or feral, is the only species known to be naturally susceptible to this disease. The disease was first recognized in the USA in the mid 1980's and was called Mystery swine disease or blue ear disease.

The virus is highly infectious, occurs in pigs of all age groups, and has the ability to persist in long term carrier pigs (greater than 200 days). The PRRS virus is only moderately resistant to environmental degradation and is easily inactivated by most common disinfectants. The virus often appears to interact with other pathogens, which magnifies severity of diseases.

Clinical Signs:

The clinical signs of PRRS vary with the strain of virus, the immune status of the herd and management factors. Infection may also be asymptomatic. Clinical disease in a herd is a consequence of acute viremia in individuals and transplacental transmission of virus from viremic sows to their fetuses, which can occur at any time, though infections in the last third of pregnancy can result in severe disease. Concurrent infections with other pathogens are also common. In breeding age gilts, sows and boars clinical signs may include a period of anorexia, fever, lethargy, depression and perhaps respiratory distress and vomiting. Reproductive problems, however, are often the most obvious signs with an increase in premature farrowings, late term abortions, stillborn or weak piglets and mummified fetuses. In young, growing and finishing pigs the primary clinical signs are fever, depression, lethargy, stunting due to systemic disease and pneumonia. Post weaning mortality is markedly increased, especially with more virulent strains and complications due to secondary infections.

Epidemiology of Transmission:

PRRS can spread rapidly through intensive pig-rearing regions and causes both acute and chronic infection as the virus persists in the pig's environment. Significant risk factors for spread between farms include proximity to infected neighboring herds, purchase of animals from herds incubating infection, and the purchase of semen from boars at PRRS-infected artificial insemination centers. PRRS virus is

mainly spread by direct pig to pig contact. The virus can be detected in saliva, urine, milk, colostrum, and feces of infected animals. Mechanical transport and transmission has been reported via contaminated needles, fomites (boots and coveralls), farm personnel (hands), transport vehicles (contaminated trailers), and insects (houseflies and mosquitoes). Airborne spread of the virus has also been documented.

The persistence of the virus leads to challenges when the goal is to break the cycle of infection. Sows infected while pregnant may deliver viremic, persistently infected piglets as a congenital PRRS virus infection. The virus can transmit from infected piglets or sows to other piglets. The cycle of virus shedding and infection can continue well into the nursery phase in cases where the sow herd is actively infected. Whenever comingling of pigs occur, there is the potential of bringing naive pigs in contact with pigs still actively shedding virus. Boars are known to shed the virus in semen for up to 3 months post-infection; sows can be infected via natural breeding or artificial insemination.

Basic Prevention and Control:

The main way in which PRRS has been introduced is via pig movements and there is no single successful strategy for controlling the disease. The PRRS virus is enveloped and is therefore easily inactivated by most commonly approved EPA and Health Canada registered disinfectants. Modified Live Vaccines (MLV) are the primary immunological tool for PRRS control. Vaccination, coupled with following strict biosecurity protocols and careful management may help lessen the chances of an infection or re-infection. Preventing the introduction of the pathogen into a naive production system is key.

Where wild pigs may be present, steps should be taken to ensure domestic populations are protected from contact. Additional methods for prevention include changing the directions of pig movement around the farm in order to reduce droplet contamination from older pigs to younger pigs. Consider farrowing once every two to four weeks thus giving an age break between groups and houses. Consider depopulation where virus is active. Other management approaches include:

- Only purchase breeding stock from herds believed free of PRRS
- Set up a quarantine system to hold new pigs for a minimum of eight weeks
- Ensure transport vehicles do not come onto the farm with other pigs already on board
- Provide boots and coveralls for all visitors
- Do not borrow equipment from other pig farms
- Review herd biosecurity.

References:

1. Neumann E.J., Ramirez A., Schwartz K.J., (2009) *Swine Disease Manual, 4th Edition*. Perry, Iowa: American Association of Swine Veterinarians.
2. OIE, Report of the OIE ad hoc group on Porcine Reproductive Respiratory Syndrome
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3. The Merck Veterinary Manual
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