PRRS

Porcine Reproductive and Respiratory Syndrome (PRRS) is one of the top 5 major diseases in swine production and one of the most significant health risks for pigs worldwide.

It is caused by an arterivirus that eliminates most of the animal's defense mechanisms and allows bacteria and other virus to proliferate and damage the respiratory system (PRRSV acts as an enhancing factor for other infections).

The virus can cross the placenta and infect fetuses:

Gilts and sows can become chronically under-productive, with increased foetal morbidity and mortality.

Surviving progeny can be more prone to respiratory tract infections and associated growth problems.

Causing:

- Abortions in the third trimester
- Mummies or stillborn

Economic impact

PRRS may reduce the annual production of the herd by 15%

The total cost of productivity losses due to PRRSV was estimated at:

- US $664 million annually in 2011 (US $1.8 million per day) in the US national breeding and growing-pig herd.[2]
- $4.67 per every pig marketed in the US (even US $5.57 per head placed).[3]
- 255€ per sow and year in European breeding herds (it may result in an average loss of 1.7 sold feeder pigs and €296 per sow).
- An increase of 14 to 30 days to market in the finishing stage.

The impact of PRRS on European farm profit was -19.1% on average (and -41% in the worst case).

Prevalence

PRRSV is transferred via aerosol and bodily fluids, and it is easily spread through a herd.[1]

Studies have shown that PRRSV infection has become endemic in nearly all the swine producing areas of the world.

There are 2 PRRSV species:

- **PRRSV1:** predominant in Europe
- **PRRSV2:** prevalent in the Americas

Asia has a mix of both.

PRRSV has an extremely high mutation rate and new strains of the virus are constantly emerging, producing new outbreaks throughout the world.

Diagnosis

This is based on:

- Clinical signs (with supportive gross lesions and clinical history can suggest PRRS).
- Post mortem examinations.
- PCR test (from tissue samples, oral fluids, swabs from the respiratory tract, semen, etc.).

Any tentative clinical diagnosis should be confirmed using laboratory methods:

- Serology is the standard test.
- Currently, oral fluids are used to monitor farms, but serology is not a valid approach in previously infected or vaccinated herds (cannot differentiate among antibodies' origin).

Clinical signs:

Clinical signs vary between herds depending on:

- The virulence of the virus
- The immune status of the pigs
- The strain (North American strains are clinically more severe)

Clinical signs include:

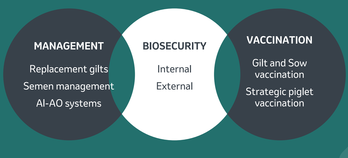
- Chemosis (puffy eyes)
- Less viable piglets
- Increase of respiratory infections in piglets due to co-infections
- Lethargy, anorexia
- Moderate coughing, sneezing
- Increase in overall mortality
- Reproductive issues (such as premature farrowing, increase in returns, longer anestrus, delayed returns to estrus, MMA, increased stillborn levels, foetal morbidity)
- Fever, anorexia and late-term abortions in sows

Treatment and prevention

PRRS control is only possible through a structured action plan tailored to individual farms.

Controlling PRRS: a multi-factorial approach

Controlling PRRS is a journey with several important stops:



The main goals are based on:

- Avoiding the entry of new PRRSV strains.
- Minimizing virus transmission and circulation in the farm.
- Maximizing the herd immunity against PRRSV.
- Limiting the losses due to secondary infections.

Eradication of PRRSV is possible by implementing different management procedures such as whole herd depopulation-repopulation or herd closure, test and removal under vaccination.

[1] Pileri E and Mateu E. Review on the transmission porcine reproductive and respiratory syndrome virus between pigs and farms and impact on vaccination. Vet Res. 2016;47: 108.

[2] Holtkamp D. *et al*. Assessment of the economic impact of porcine reproductive and respiratory syndrome virus on United States pork producers. Journal of Swine Health and Production, 2013.

[3] Haden C. *et al*, 2012 AASV Annual Meeting, 75-7.