



# GUIDE TO PRRS

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## WHAT IS PRRS?



PRRS stands for Porcine Respiratory Reproductive Syndrome. It is caused by a virus.

The PRRS virus is similar in structure to the virus that causes the Common Cold in humans. This is important to remember as this can help us understand some things about the PRRS virus:

- **The virus is constantly mutating.** Like human colds PRRS virus' are constantly changing, there are more strains than we can keep track of and there will always be new strains appearing!
- **Different strains have very different severity.** A cold might give you just a tickle in the throat and a runny nose, or can put you in bed for several days. In a similar way PRRS on a farm can demonstrate very mild signs, or can cause very sick pigs.
- **Just because you've had one strain doesn't mean that you're immune to another!** You will always succumb to colds throughout your life, because having become immune to one strain doesn't necessarily protect you from another. This is the same with PRRS.  
If a herd which is already PRRS positive becomes exposed to a new strain, you can still have a massive disease outbreak.

## HOW CAN PRRS SPREAD?

A pig infected with PRRS will shed the virus in:

- Faeces
- Urine
- Semen
- Milk
- Saliva
- Nasal fluid

A pig can be infected with PRRS via:

- Skin penetration
- The nose
- The mouth
- Sexually

Pigs are particularly vulnerable to PRRS via skin penetration, through which infection can occur by transmission of less than 100 virus particles. This may sound like a lot of virus but a pig which is recently infected with PRRS will have 10,000 PRRS viruses in **each millilitre** of saliva, nasal fluid or blood. So for virus transmission all it would take is 0.01ml of blood/saliva/nasal fluid to get through the skin of another pig. This can very easily occur by needles, tail docking, teeth clipping, ear notching, tattooing, slap marking, tail biting, ear biting and fighting. This makes direct contact and routine husbandry practices the highest risk factors for PRRS transmission.



## WHAT DO YOU SEE IN A PIG INFECTED WITH PRRS?

Clinical signs vary greatly from none to catastrophic. This depends on the level of immunity present, the strain of PRRS present, the management system and the presence of other diseases.

### THE “NAÏVE HERD”

A herd can be described as naïve if it has not been exposed to the PRRS strain and has no immunity to it.

#### SOWS

Sows will stop eating and become very lethargic. This is often seen in waves across the farm as the virus travels around. The sows may have a temperature, they may have fast breathing and they may get red/purple/blue ears (hence the traditional name for the disease - ‘Blue Ear’). You can expect 1-4% mortality. This may be related to other endemic diseases as PRRS affects the immune system and hence pigs are more susceptible to other infections.

Around one week after infection you may see reproductive issues:

- Litters born early
- Litters containing a mixture of normal piglets, weak piglets, fresh stillborn and mummies.
- A low number of abortions and irregular returns

#### SUCKLING PIGS

There is high pre-weaning mortality during an acute PRRS outbreak (up to 60% mortality). Piglets may starve due to listlessness, splay-leg or due to the sow not producing enough milk. Piglets may struggle to breathe, show nervous signs, experience sporadic bleeding (often seen under the skin), or may experience watery diarrhoea.

#### FEEDING HERD

Acute PRRS infection normally presents as significantly reduced feed intake, lethargy, red/purple/blue extremities and panting type breathing. In “new” PRRS outbreaks coughing is not commonly seen. Resulting pigs are in variable condition, uneven in growth with rough hair coats. As previously mentioned the PRRS virus affects the pig’s immune system so they are more susceptible to other diseases, this is often what leads to coughing and increased mortality.

### THE “PRRS POSITIVE HERD”

In herds which are historically positive for PRRS the clinical signs described above will normally only be seen in occasional outbreaks in pigs with inadequate immunity e.g. the nursery or grower/finisher pigs and gilts/younger parity sows.



## DIAGNOSIS



### DIAGNOSTIC TESTS

PRRS diagnostics are a very complicated topic.

Broadly speaking there are two approaches to determine the presence of PRRS:

1. Detection of the virus
2. Detection of antibody in pigs (showing the pig has been exposed to the virus)

### DETECTION OF THE VIRUS

This can be done by looking in samples of body tissue, saliva samples or blood collection.

### DETECTION OF ANTIBODY

Antibodies can be detected in the blood or saliva samples.

If this result is positive it could show that:

1. The pig has been vaccinated against PRRS **OR**
2. The pig has been exposed to PRRS disease **OR**
3. Both of the above **OR**
4. The result is a false positive (unlikely to happen in multiple samples)

Negative antibody results can be equally tricky as a negative antibody results could indicate:

1. Pigs are not infected with PRRS
2. Pigs have not yet had time to produce antibodies against PRRS
3. The test is not sensitive enough



# PREVENTION AND CONTROL

## PREVENTION

Preventing PRRS entering a naïve herd, or new strains entering a PRRS positive herd is entirely reliant on biosecurity. For these biosecurity programmes to be effective all possible routes of virus entry should be considered.

RISK FACTOR	BEST PRACTICAL CONTROL MEASURE
Buying In Stock	Breed own replacement gilts
Buying In Semen	Choose one source who regularly test for PRRS
Wildlife	Wildlife perimeter fencing, bird proofing and pest control
Vehicles	Perimeter fencing so no vehicles enter site
Fomites	No equipment, clothing or footwear to pass between farms or stages of production
Personnel	48 hours pig clean time and showering policy
Biting Flies	Insect control policy
Aerosol	Air filtration systems



# CONTROL

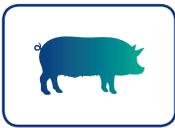
## THE ENVIRONMENT

PRRS is quite a fragile virus which will be quickly killed by heat and drying. However, in cool and damp conditions the virus can survive in the environment for days.

PRRS is readily inactivated by detergents and disinfectants so thorough cleaning and disinfection of building, equipment, clothing and footwear is very important.

## BREEDING-HERD CONTROL

Control of PRRS relies on achieving stable PRRS immunity in the breeding herd, this pivots on the young breeding stock as they are often the source of PRRS issues due to low PRRS immunity. Immunity can be achieved with a vaccination programme.



### GILT MANAGEMENT

If gilts are properly acclimatised before entry into the breeding herd then stability should be easily maintained. Gilt acclimatisation relies on development of immunity either by exposure to PRRS infected animals, or by vaccination with a live vaccine. This should occur before the gilts enter the breeding herd to ensure they are not actively excreting virus, increasing challenge to other breeding animals. Exposure/ vaccination of the gilts around 2-4 months of age provides time for the development of immunity and resolution of infection before they enter the breeding herd. When using live PRRS vaccine products, all pigs in the airspace should be vaccinated simultaneously.



### SOW MANAGEMENT

Stable PRRS immunity is maintained by implementing an appropriate vaccination protocol.



### SUCKLING PIG MANAGEMENT

The target in the suckling pig period is to limit spread amongst litters. This can be achieved by restricting cross fostering to the first 24 hours of life, euthanizing severely affected piglets and maintaining strict All-In-All-out policies with no holding back of piglets or moving them from room to room.



### FEEDING HERD MANAGEMENT

Control of chronic PRRS in the weaned pig population can be difficult, and in continuous systems it can be virtually impossible. The most desirable starting point is receiving PRRS stable weaned pigs, but this obviously relies on the breeding herd management. In positive pigs mass live PRRS vaccination and use of All-in-All-out management is the best strategy.

Endemic disease control is also a significant way of controlling the impact of PRRS: *Mycoplasma hyopneumoniae* (Enzootic Pneumonia), *Actinobacillus pleruo pneumoniae* (APP), *Haemophilus parasuis* (Glässers), Influenza and Porcine circovirus must all also be well controlled.





## VACCINES

Vaccination using a live PRRS Vaccine can result in protective immunity: it can control clinical signs and reduce shedding of wild type virus.

It is important to consult your vet before undertaking a vaccination programme with a live vaccine in pigs that have not been vaccinated or exposed to PRRS previously.

## PRRS ELIMINATION

Elimination of PRRS results in improvement of pig health and production. Elimination may be attempted via three routes:

1. Total depopulation/repopulation
2. Partial depopulation
3. Mass vaccination

Each of these techniques must be accompanied by strict biosecurity measures in order to prevent reinfection.

Depopulation and repopulation is the most thorough approach but is very expensive, however it may be increasingly worthwhile if other disease can also be eliminated. Where the unit is farrow to finish it is the only realistic option for elimination.

Mass vaccination can in theory be used to eliminate PRRS from a herd as the virus does not persist in immune animals. This is most easily achieved in a closed herd which weans pigs off site.

## TALK TO YOUR VETERINARY SURGEON ABOUT VACCINATION AND ELIMINATION OPTIONS.



For further information please contact your veterinary surgeon or Zoetis UK Ltd, Walton Oaks, Tadworth, Surrey KT20 7NS  
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