

Is PRRS really affecting your herd's performance?

After 15 years, we are still trying to get a handle on PRRS. It still remains one of the most devastating diseases in the swine industry, costing producers thousands of dollars in loss productivity each year. Most veterinarians and researchers agree that the main source of PRRS transmission is the introduction of new animals into a herd.

But what if you could eliminate this source all together? The [Closed Herd™ System](#) eliminates the introduction of new animals. The result is a healthier, more productive, more profitable herd.

What are your options?

If you could eliminate disease, then your herd would be healthy... right?

Sounds simple, but PRRS does not go away that easily. Current industry attempts to control PRRS have tried this approach and failed. Even when herds have been completely depopulated, and repopulated with PRRS negative animals, the virus manages to return to the herd through the introduction of infected gilts or infected semen.

Furthermore, attempts to eliminate the virus transfer through long isolation/acclimation periods for gilts, has had mixed results. Longer isolation periods make it more difficult for the producer to manage a consistent pig flow. Additionally, the longer the isolation, the more non-productive days a replacement animal accumulates.

What about introducing only PRRS negative gilts? Initially it seemed like a good idea. However, due to the nature of PRRS, some sows in the herd will remain persistently infected, therefore contagious. So when negative gilts are brought into a positive sow herd... they get sick!

[The Closed Herd™ System](#) offers a completely different approach.

Rather than eliminate the virus, the [Closed Herd™ System](#) promotes viral stability in the herd. Viral stability results in high state of herd health, despite the presence of disease. The [Closed Herd™ System](#) prevents the introduction of diseases, and maintains herd health, because it eliminates the introduction of the most common vector...sick animals. It also eliminates the introduction of susceptible naïve animals that perpetuate the disease. The result is healthier animals all the way through finishing.

Recently, production data was compared between PRRS positive and PRRS negative farms using the [Closed Herd™ System](#). The results were surprising, and in fact they were even described as 'the most significant paper on PRRS' presented at the American Association of Swine Veterinarians conference, held March 3-6, 2002.

[There was absolutely no statistical difference in production between PRRS positive farms and PRRS negative farms using the Closed Herd™ System.](#)

In fact, in many areas of production, the PRRS positive farms out-performed PRRS negative herds.

The 39 farms in the study have all been closed to new animal introductions from 2 to 8 years. Each farm had the same genetics, and ranged in size between 200 to 3,000 sows, with the average farm at 1,000 sows. The farms were located throughout the upper Midwest and Pennsylvania. Blood samples were collected on 40 animals, 10 from each of the following stages: gestation, nursery, grower, and finishing. Samples were tested for PRRS antibodies using the ELISA test.

Of the farms tested, 29 had at least one animal test positive to PRRS antibodies. These farms were classified as PRRS positive. The remaining 10 farms were considered PRRS negative or naive, as none of the animals tested had a positive PRRS titer. All of the PRRS negative farms have been negative since population.

Twelve months of production data was collected and analyzed for a statistical difference between the PRRS positive and negative farms. Contrary to what you would expect, farms testing positive for PRRS did not perform differently from farms that were PRRS negative (Table 1). In fact, in some cases PRRS positive farms slightly outperformed the PRRS negative farms.

Table 1: Comparison of 2001 production records from PRRS positive and PRRS negative farms using the Closed Herd™ System.

	PRRS Positive Farms 26,275 sows n=29	PRRS Negative Farms 16,200 sows n=10	Difference in Production	Statistical Significance P value**
Average Parity	2.3	2.0	--	--
Farrowing Rate	86.5%	83.9%	- 2.6%	0.293
Total Pigs Born per litter	11.1	11.0	+0.1	0.942
Average Stillborn	0.7	0.8	+0.1	0.204
Pre-Weaning Mortality	10.5%	11.3%	+0.8	0.938
Pigs Weaned Per Sow	9.0	8.9	+0.1	0.304
Pigs Weaned Per Sow Per Year	20.6	20.0	+.06	0.963
Sow Mortality	4.0%	5.1%	-1.1%	0.785

***P value = anything less than 0.05 is statistically significant. Which means that there is less than a 5% chance that the results occurred by chance alone, or that there is a 95% chance that the results are related. All the p values in this study were well above 0.05, meaning that the results occurred by chance, and are therefore not related to the PRRS status of the herd.*

Additionally, in 2001, a smaller study of 12 farms located in Pennsylvania, reported that there was no difference in the performance of pigs from PRRS positive farms compared to pigs from PRRS negative farms in Average Daily Gain or Feed Conversion (Table 2).

Table 2: Comparison of year 2001 finishing performance among PRRS positive and PRRS negative farms using the Closed Herd™ System.

	PRRS Positive Farms 196,015 head placed n=7	PRRS Negative Farms 135,132 head placed n=5	Difference
Average Daily Gain	1.76	1.76	0.00
Feed Conversion	2.64	2.67	+0.03

Why does the The Closed Herd™ System Work?

- Herd Health is stabilized.
- Replacement animals are raised on the sow site.
- Semen is collected from boars within a Closed Herd™ System.
- Pigs are not co-mingled from different sources at any stage.
- High-risk herds are vaccinated.

Herd Health is stabilized.

There are two stages of animals in a PRRS positive herd.

Viremic or Contagious

Occurs shortly after exposure to the virus

The virus is active, and can be detected through PCR testing of either blood or semen.

Animals are contagious

Animals may or may not show symptoms of the disease

Exposed, but not contagious

No active virus can be detected

Antibodies can be detected through ELISA testing

No symptoms of the disease are apparent

One of the challenges with PRRS is that the 'viremic' state can vary among animals. Most are 'viremic' for 1-2 weeks, yet the virus has been isolated in the blood for up to 86 days in some animals (Bierk et al, 2001). Further complicating the issue, are recent studies that have found the PRRS virus in the tonsils of some animals for up to 213 days after infection (Bierk et al, 2000).

What does this mean? There are literally animals in the herd just waiting to infect the next bunch of naive gilts introduced to the farm! Even with isolation and acclimatization, not all the gilts will be infected at the same time, nor will they stop being 'viremic' at the same time. So despite all your efforts, more than likely a few gilts will still be contagious when they are introduced into your herd. Contagious gilts start the cycle of disease

throughout your herd.

[Replacement animals are raised on the sow site.](#)

In the [Closed Herd™ System](#) 'viremic' animals are prevented from entering the sow herd. Since gilts are produced within the herd, they are exposed to the herd's health challenges at an early age. The result is that by the time the animals arrive into the finisher, almost all of the gilts have developed antibodies to PRRS and are well past the point of being contagious.

All replacement animals are produced through a [rotational cross](#) that results in stronger, healthier gilts than purebred replacement animals. Genetic improvement is maintained through careful selection and indexing of all replacement animals. The farm benefits from having continuous gilt availability, and from having a large number of high-indexed gilts from which to select.

[Semen is collected from boars within a Closed Herd™ System.](#)

Mating on these farms is done through Artificial Insemination, eliminating the need for boars to be delivered. Semen is provided from isolated boar studs that obtain new animals from a single, [Closed Herd™](#) source. Boars are not co-mingled at any point with animals from an outside source, so herd health is maintained.

Additionally, each of the boar studs are held to the highest biosecurity level, sending semen on a regular basis to be tested for quality, and to be checked for presence of the PRRS virus using PCR technology.

[Pigs are not co-mingled from different sources at any stage.](#)

As in the sow herd, the grow-finish farms are also single source. Pigs are not co-mingled from different farms, therefore minimizing the exposure to new pathogens in the nursery and finisher.

In many of the farms, gilts are raised in a continuous flow gilt developer. In this system, gilts are continuously added to the building throughout the grower and finisher stage. This gives replacement animals consistent exposure to the herd's pathogens and allows them to develop herd-specific antibodies. The long acclimation period ensures that the gilts are no longer viremic entering the herd.

[High-risk herds are vaccinated.](#)

Vaccination of high-risk herds helps to ensure that the virus will not find a naive host. The typical PRRS positive farms in this study were vaccinating replacement animals two to three weeks before moving into breeding, and sows were vaccinated just before weaning. Approximately 25% of the farms that tested positive were using a live PRRS vaccine, 25% were using a killed PRRS vaccine.

Current information supports quarterly vaccinations with PRRS, given to the whole sow herd. There is evidence that sows can become viremic for a short period after being vaccinated, and may be able to shed the virus to susceptible animals (Astrup and Riising, 2002). Additionally, vaccine protection only lasts 110 days; the normal reproductive cycle of a sow is 140 days. By waiting to vaccinate her before every weaning, there is a gap in protection. Quarterly, whole herd vaccinations eliminate the opportunity for the spread of the disease.

REFERENCES

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