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PRRS:
Strategies to Keep it at Bay

Highlights from a seminar by Dr. Scott Dee

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Dr. Scott Dee's experimental "snow ball from hell" was an eye opening look at the ability of the PRRS virus to survive and travel to another host opportunity. Once again, Dr. Dee has examined the virus' ability to survive and spread in methods undefined to us before, such as in a snowball.

The risk of PRRS can be defined by the applied level of biosecurity. Increased biosecurity programs, if enforced, can reduce the risk of PRRS. Aerosol, insects, transport, personnel and equipment can be classified as medium to high risk areas of concern that most hog producers are aware of and can control to some extent.

Manure

PRRSv has continuously found a way to increase its prevalence and ability to infect a herd. One new example of this is in the pit. Previously, it was believed that pigs did not shed viable PRRSv in the feces, and it did not live long. We once were able to detect live virus in the pit for only a short period, 30 minutes. The result was the belief that infection from exposure to manure was considered low risk. New research by Dr. Dee has exposed that PRRS can be shed from and survives in manure.

Dr. Dee found that pigs shed the virus in the manure for 7-10 days after infection. The virus can survive 14 days at 4.4 degrees Celsius and 5 days at 15.5 degrees Celsius in the slurry. Many out breaks occur as temperature drops in the fall and environmental dampness is high. This is also a time when many pits are agitated and pumped out to be applied to the land. We now know that pit agitation and pumping aerosolizes the virus and allows for increased disease pressure from PRRSv on the herd and possible spread to nearby hog systems.

The equipment used during manure management also becomes a risk. In many cases, custom manure management can expose many operations in an area as the equipment move from farm to farm to empty pits and apply manure to crops. Tests have shown that the virus survived on drag hoses and agitators for 4 days at 4.4 degrees Celsius.

Air Filtration

He also demonstrated the virus' ability to become airborne. Aerosols are very difficult for any biosecurity program to keep out. As a result, filtration of air entering a barn has become a necessary reality in some areas. Most boar studs and a few large sow farrow to wean operations have already adopted the technology.

One of his past experiments showed that the PRRSv travelled 9.1 km in the air and was still very virulent. Some strains may have higher aerosol capabilities than others. It is this type of data that makes air filtration necessary in some areas. Pre-filters, micro filters and filter banks at inlets are systems are already in place in some barns.

Dr. Scott Dee's Results on PRRSv outbreaks in Air filtered barns

	Filtered Barns	Non-Filtered Barns
# of Sites	24	33
Total Cumulative Days	16531	29471
# of New Infections	6	84
Interval Between Infections (days)	3756	351
# of Infections/Farm	0.25	2.5

Note: All barns are sow units with 2000 sows or more.

As we can see from the chart, the non-filtered barns were 14 more times more likely to break with a PRRS infection. Filtered barns had an infection interval almost 8 times longer than those barns that were not filtered.

The chart also shows that even a farm with an air filter system in place is not 100% protected. Personnel, back drafts from fans/pit pumps, supplies and transport have all been identified as vectors in the six outbreaks shown on the filtered farms.

Back Drafts

Further experimentation was needed to identify the biosecurity risk of back drafts. An aerosol form of the PRRS virus was sprayed outside of an idle fan in four increasing concentrations. A back draft of 150 feet/min was created by having other fans in the barn running. The air was then tested at fan level inside the barn. The two lowest concentrations of PRRS virus aerosol tested positive inside the barn 8 out 10 replications. The two higher PRRS virus concentration aerosols tested positive inside the barn 10 out of 10 replications. This experiment was completed with the shutters still in the fan hoods! Also, any back draft speed below 150 feet/min was insufficient to carry the virus into the barn.

Back drafts can be controlled by canvas to cover shutters, double shutters (shutters inside and outside the fan), and shutters with air chutes. These methods all dropped the risk of an aerosol infection due to drafts. The double shutter and shutter/air chute methods resulted in zero positive tests on 10 replications whereas the canvas method allowed the virus in 3-6 out of the 10 replications.

Other Risks

Cell phones, when exposed to the virus carried PRRS into the barn 20 out of 30 times. Stepping outside to check the feed bin allowed the virus in 11 out of 30 times when the virus was spread around the bin. Even the towel from the shower if not properly handled allowed the virus in 3 out of 30 times when the virus was applied to the floor of the dirty side of the barn.

When asked to prioritize the risks, Dr. Dee said that animal movement from barn to barn is the greatest risk. Personnel are the next greatest risk, so training is essential. Transport was ranked third, but he also went on to say that 1 ounce of disinfectant per gallon of water in a foam applicator with 1 hour exposure time and complete drying will kill the virus on a trailer. The fourth prioritized risk is location. Unfortunately this cannot always be controlled.

Basically, if biosecurity rules are broken, you will get PRRS virus in the barn. Biosecurity is essential. Air filtration is effective. Science based biosecurity programs will work in keeping PRRS out of the barn. Biosecurity must be 24/7/365.

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WESTERN FAIR FARM SHOW

Wednesday, March 7th: 9am-6pm

Thursday, March 8th: 9am-6pm

Friday, March 9th: 9am- 4pm

Booth # 127H
Progress building

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