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A model for gilt acclimation in the field

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History

Gilt reproductive performance is critical to the success of a production system. With replacement rates over 50% and sow mortality rates reaching 10-12% the gilt\P1 can make up the majority of a breeding herd. Acclimation to diseases on site on prior to entry into the breeding herd is a key part of maximizing gilt performance.

Many of the units in the Pipestone System were built with a "just-in-time" gilt delivery system. A select gilt 30 weeks of age, 300 lb is delivered to Site 1 and bred shortly after arrival. This system turned out to be the "not-in-time" gilt delivery system for PRRS and other disease acclimation. Our major struggle with the "just-in-time" introduction of gilts is a lack of time post-infection to allow gilts to clear infectious agents like PRRS. The results are simple—too much PRRSV transmission and circulation is present at Site 1, which leads to less-than-optimum performance at Sites 1, 2, and 3.

The solution to the PRRS problem is quite elusive, but it seemed that a longer gilt acclimation time to the PRRS at Site 1 would be a logical next step. The addition of a gilt development unit (GDU) was constructed on seven sow farms. These sow farms range is size from 3,100-3,400 sows. The GDUs were built to accommodate approximately 20 weeks of gilt supply for Site 1. The gilts are delivered to the GDU at 50 lb and exposed\infected with PRRS from Site 1.

Design and flow

- Minimize PRRS circulation at Site 1 through the addition of "immune," non-viremic gilts into the breeding herd
- Allow Site 1 management to develop the gilt for maximum reproductive performance

The building design allows for a four-week supply of gilts to be housed in a separate air space. In this space, gilts are purposely infected with PRRSV through viremic farrowing piglets, serum injections, or serum intranasally. The gilts are then move progressively forward through pens until they reach about 26 weeks of age; at that time they are put into a gestation crate. The GDU is designed with two airspaces, one for the infection and the rest of the gilts share the same airspace.

The following things are done prior to moving gilts to the breeding herd:

- Gilts are vaccinated, bled for PRV, feedback of farrowing manure, heat checked daily at 150 days of age until added to breeding herd.
- After four weeks of purposefully attempting to infect them, samples of gilts are bled for PRRS-ELISA.
- A sample of gilts is also tested using PRRSV-PCR prior to entry into the gestation barn.

Results

Production results have been measured for six months, but do not yet include gilts that have gone through entire system.

The health objectives have consistently been met. There are no gilts that have remained PRRS-negative by ELISA after purposefully attempting to infect them. There have been three groups of gilts at two different sow farms that have been PRRSV-PCR-positive prior to entry into the gestation barn. In these situations, we have halted the movement into the breeding herd until further investigation or "cool down" time is allowed.

The performance at Site 2 and Site 3 is subject to an ongoing investigation; preliminary results are encouraging as mortalities are improving. However, we have not yet collected enough information to draw firm conclusions. We hope to improve gilt longevity in this system also by minimizing movement stress, allowing for 12 ft^2 per gilt in development, and minimizing the disease affects. This too, is yet to be determined.

Summary

The addition of GDUs to Site 1 seems to be a logical tactic, but we continue to monitor the actual performance of these units and cannot draw final conclusions at this time.