

# Time for a change? Farms achieve IAV-S-negative pigs after switching to whole-herd vaccination

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Influenza A virus in swine (IAV-S) continues to frustrate US pork producers. From respiratory problems to reproductive challenges, this rapidly changing virus throws a one-two punch that negatively impacts productivity and profitability. A 2008 study estimated IAV-S losses to be \$10.31 per market hog.<sup>1</sup>

And if those challenges aren't enough, influenza becomes even more menacing as a co-infection with other pathogens such as porcine reproductive and respiratory syndrome virus (PRRSV).

An effective vaccination protocol is imperative to controlling swine influenza. But when your usual practice isn't yielding successful results, rethinking your influenza-control strategy may help improve outcomes.

Micah Jansen, DVM, veterinary manager of US Pork at Zoetis, cites two examples demonstrating this “change is good” approach to managing IAV-S outbreaks.

Recalling the experiences of a southern Minnesota, 1,200-sow, farrow-to-wean herd and a 3,600-sow, farrow-to-wean herd in Iowa, she noted, “In both cases, we shifted our objective to reducing the amount of virus moving around the sow farms. We wanted to build homogenized immunity across the entire herd, and whole-herd vaccination targets that.”

These two cases focused on administering influenza vaccine to a whole herd of sows simultaneously.

## **Leveling the pigs’ playing field**

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Homogenized immunity helps level the “playing field” for the entire herd. It equalizes the herd’s susceptibility to IAV-S because it establishes similar levels of antibodies in the adult animals, which they pass on to their piglets, providing them with antibodies as well.<sup>2</sup> In these conditions, the virus tends to run its course quickly.

“If influenza comes in and the whole herd just got a booster, then from a respiratory and reproductive standpoint, the animals will be protected,” Jansen explains. “If an infected sow or gilt is dealing with the additional stresses of influenza such as fever and decreased appetite, she may abort the litter.”

Whole-herd vaccination also reduces the likelihood of subpopulations developing within a herd because the entire herd is vaccinated at the same time. In contrast, the pre-farrow method staggers the timing of vaccinations to coincide with when sows are due to farrow.

The pre-farrow approach focuses on ramping up antibodies within the sows so that they will pass them on to their piglets. However, since sows are at different stages of gestation and vaccination timing is dependent upon when they farrow, subgroups of sows with varying levels of antibodies can develop. This creates differing levels of antibodies in their piglets, making some more susceptible to developing influenza. Consequently, this presents opportunities for the virus to hide among various populations within the herd, only to resurface when pigs are stressed.

## **Clinical piglets and PRRSV co-infection prompt a different vaccination approach**

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Jansen points out that both farms in the studies were using a pre-farrow vaccination strategy and were still experiencing clinical signs in suckling piglets and the nurseries.<sup>3</sup>

The southern Minnesota facility was using a two-dose autogenous influenza vaccine in breeding females at 5 and 3 weeks pre-farrowing. The Iowa system, which was also struggling with PRRSV, used FluSure XP® approximately 3 weeks pre-farrowing in all sows and gilts.

Both approaches failed to produce IAV-S-negative pigs. Faced with less-than-optimal results, the farms' management teams and veterinarians decided to implement a two-dose breeding-herd vaccination protocol using FluSure XP.

The vaccination timing for both farms occurred in late winter/early spring. Timing is vital because, as Jansen points out, "Whole-herd boosters should be given before influenza hits, and spikes tend to happen in the fall and early spring."

The southern Minnesota farm that had switched to FluSure XP achieved IAV-S-negative pigs 5 weeks after administering the second dose to the breeding herd. Similarly, the Iowa herd with the PRRSV co-infection had nearly eliminated clinical signs 5 weeks after the second vaccination. Caregivers reported that coughing piglets in the farrowing room were hard to find.

A whole-herd vaccination protocol with a broad, cross-protection vaccine like FluSure XP combined with proper management of piglets and replacement gilts, can help effectively control disease in herds. FluSure XP includes H1N1 gamma, H1N2 delta 1, H3N2 cluster IV-A, and H3N2 cluster IV-B.

Producers and veterinarians should implement a vaccination approach that supports the growth and well-being of healthy pigs to avoid financial losses. With the current high cost of pigs, mortality costs from influenza equate to money left on the table, so it pays to invest.

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1 Donovan TS. Influenza isolate selection methodology for timely autogenous vaccine use. In Proceedings: Am Assoc Swine Vet Conf. 2008;557-561.

2 Kuhn M, Ficken MD. Protection against H1N1 and H3N2 swine influenza virus challenges by maternal antibody. Am Assoc Swine Vet. 2003.

3 Corzo C, Gramer M, Kuhn M, Morrison R. Swine breeding herd monitoring for influenza virus after mass vaccination. In Proceedings: Internat Pig Vet Soc annual meeting. 2012. Submitted for publication.

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