



An interview with Jose Angulo, DVM, Managing Veterinarian, PRRS Specialist, Pork Technical Services, Zoetis

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## Early vaccination, longer duration of immunity driving demand for Fostera® PRRS

**Q:** Porcine reproductive and respiratory syndrome virus (PRRSV) has been in the spotlight for many years. How much of an economic impact is it having on the US pork industry?

**JA:** Quite a bit. Five years ago, Iowa State University (ISU) estimated that even with increased knowledge and improved protection, PRRSV costs the industry \$664 million annually — or put another way, nearly \$2 million each day — in production-related costs. Add in an additional \$1 billion a year for other disease-control expenses, it’s safe to say that effective PRRS management could be the difference between a profit and loss in infected operations.<sup>1</sup> (In 2016, ISU began a follow-up economic study, but results are at least 2 years away.<sup>2</sup>)

More recently, researchers at the University of Guelph, Canada, calculated the total cost (in Canadian dollars) associated with PRRS outbreaks — based on the cost of mortality and impaired performance — to be up to \$4 million annually or \$4.50 per nursery pig and \$1.87 per grower-finisher pig in the year following an outbreak.<sup>3</sup>

**Q:** Specifically, how does PRRS affect herd health and productivity of US herds?

**JA:** PRRS has two pathological presentations, just as its name implies. First, it causes reproductive disease in sows and gilts, which leads to abortions and high rates of stillborns and mummies, as well as low-viability pigs. Second, it causes respiratory diseases in growing pigs, resulting in pneumonia, poor performance and increased co-infections.

**Q:** The use of modified-live vaccines is now standard practice in most operations. Are all licensed vaccines pretty much the same? Or are there any significant distinctions among them?

**JA:** Available vaccines deliver comparable performance in lung-lesion reduction in most challenge studies. The key differences are when they can be administered and their



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duration of immunity. In other words, using the right tool at the right moment. This will give us a better likelihood of success in applied PRRS-control interventions.

**Q: Demand for Fosterera® PRRS vaccine from Zoetis has risen considerably over the past 2 years.<sup>4</sup> What's driving that trend?**

**JA:** Fosterera PRRS is the result of breakthrough research by Zoetis scientists who discovered a key cellular receptor protein for the PRRS virus — one that allowed for creation of unique cell lines for the growth and attenuation of PRRS vaccine virus. Fosterera PRRS can be administered earlier than other available vaccines — on day 1 instead of day 21. It also has a much longer duration of immunity than other vaccines.

**Q: Let's talk about that in more detail. Is there an advantage to vaccinating pigs on day 1 instead of day 21 or later?**

**JA:** Most definitely. Early vaccination in the farrowing house provides earlier onset of disease protection, which is especially important in operations where PRRS is a threat shortly after weaning. In addition, administering a PRRS vaccine when newborn pigs are processed can make dosing more convenient. Vaccinating early in the farrowing house also means pigs are immunized before they leave the sow farm and mingled with other animals at another site.

**Q: But doesn't early vaccination also mean that protection will wear off sooner?**

**JA:** Not at all. Fosterera PRRS keeps working long into the production cycle. Its duration of immunity is 26 weeks against respiratory disease — 9 weeks longer than other PRRS vaccines — and 19 weeks against reproductive disease. This means that, for the first time, producers can help protect against PRRSV throughout the entire production cycle, from nursery through finishing. As a result, research has shown that pigs vaccinated with Fosterera PRRS often get to market faster, with improved average daily gain (ADG) compared to unvaccinated animals.<sup>5</sup>

**Q: How is the vaccine's safety record?**

**JA:** Excellent. Studies confirm that Fosterera PRRS has a high margin of safety in day-old piglets. In fact, no injection-site reactions or other abnormal health events sometimes associated with vaccines were seen in testing.<sup>6</sup>

**Q: The 1-7-4 strain of PRRS has received lots of attention at scientific conferences. Is Foster® PRRS effective against this emerging threat?**

**JA:** Frequent outbreaks of a particularly virulent strain of PRRSV with RFLP (restriction fragment length polymorphism), classified as 1-7-4, have been reported nationwide since 2014. Field reports show that 1-7-4 can cause up to 20% mortality in growing pigs and 16.5% in sows, as well as a high rate of abortions and a \$2.87-per-head profit reduction in growing pigs.<sup>7</sup>

Zoetis put Foster® PRRS to the test in a respiratory challenge trial in 2015. Results confirmed a significant reduction ( $p \leq 0.05$ ) in lung lesions and a reduction in clinical signs, along with improvement in ADG post-challenge.<sup>8</sup> Viremia post-challenge in serum also was reduced.

This challenge study with PRRS 1-7-4 is part of an extensive body of evidence of Foster® PRRS cross-protection against a genetically diverse range of wild-type PRRS viruses.

**Q: All of the study data and research results are impressive. However, as with any product, the most important question is, how will vaccinating with Foster® PRRS affect a producer's bottom line?**

**JA:** The cost-benefit will vary from farm to farm and herd to herd, so I can't provide an exact figure. But when you look at the performance of herds that have received the vaccine — 63% reduction in death loss, 19% improvement in ADG, 8% improvement in feed/gain (dietary fat inclusion also likely involved) and 64% reduction in pigs weighing less than 260 pounds — it's easy to see the potential for a high return on investment.<sup>9</sup>

The bottom line is that vaccination against PRRS mitigates the clinical impact of the disease, helping to improve the overall quality of growing pigs and boosting key performance indicators — ADG and mortality — which in turn brings clear financial value to our customers.

For more information, contact Jose Angulo at [jose.angulo@zoetis.com](mailto:jose.angulo@zoetis.com).

<sup>1</sup> Holtkamp D, Kliebenstein J, Zimmerman J, et al. Assessment of the economic impact of porcine reproductive and respiratory syndrome virus on U.S. pork producer. National Pork Board Research Report 2011;NPB #10-158.

<sup>2</sup> Love F. How much does PRRS cost the pork industry? Pork Network. Feb. 17, 2016.

<sup>3</sup> Economic Impact of Porcine Reproductive and Respiratory Syndrome (PRRS) on Nursery and Grower-Finisher Production in Ontario, ThePigSite.com, May 8, 2014.

<sup>4</sup> Data on file, Zoetis Sales Data 2015-2016, Zoetis Inc.

<sup>5</sup> Data on file, Study Report Nos. 3127R-60-10890, 3127R-60-10-909 and 12PORKBIO3, Zoetis Inc.

<sup>6</sup> Ankenbauer RG, Keith, ML, Martin TL. Field safety of a PRRS MLV vaccine administered once intramuscularly to pigs of 1 day of age. Proceedings of the 23rd IPVS Congress, 2014:381.

<sup>7</sup> Linhares D, et al. Assessing impact of 1-7-4 on wean to finish pig health. Leman Conference Proceedings, 2015.

<sup>8</sup> O'Brien B. Foster® PRRS helps keep pigs growing in the face of a heterologous PRRS virus challenge. AASV Proceedings, 2015

<sup>9</sup> Data on file, Study Report No. 12PETBIO01, Zoetis Inc.

## toolbox

*Toolbox* is a series of interviews with veterinarians about their experiences managing antimicrobials, vaccines and other tools for swine health. It is produced by the editors of *Pig Health Today*® on behalf of the US Pork Business of Zoetis.

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