



PCV2 Vaccination Pays Off in Performance

WHEN PORCINE CIRCOVIRUS TYPE 2 (PCV2) EMERGED in Kansas in late 2005, veterinarian Steve Henry and the K-State PCV2 Team investigated methods to better understand and combat this devastating disease. The group studied the impact of PCV2 disease and evaluated several management options to help control the disease including the use of both one-dose and two-dose Porcine Circovirus Type 2 vaccines.

The K-State research suggested PCV2 had suppressed productivity even before the recent emergence of severe disease outbreaks and that reduced growth is a more prominent feature of the disease than previously recognized. While increased mortality caused obvious losses in many herds, some herds with low mortality were also being affected by PCV2 based on a finding of sub-optimal growth performance.

"I am still amazed by the growth improvements after immunization with two doses of vaccine," says Dr. Henry. "I've never seen an immune response that produced such a dramatic growth response, and it was totally unexpected. The other surprise was that this response was observed in all trials."

The K-State team studied the effects of immunization against PCV2 using federally licensed vaccines in multiple studies. Each study showed an increase in average daily gain (ADG) with immunization. A well designed study conducted on a 300-sow, farrow-to-finish farm near Manhattan, Kansas, showed an increase of 0.11 lbs. per day over the control group from weaning to finishing. More important, vaccinated pigs were 19 lbs. heavier at the final weighing prior to marketing, compared to the non-vaccinated pigs housed in the same pens.

In other studies, the K-State team conducted two trials on a research farm in Minnesota. In both trials, ADG was significantly better for the vaccinated pigs than for control pigs. The second trial also found that protection in the first several weeks of finishing could be particularly important to improving performance in the face of PCV2 disease. "The immunization helped cut mortality by about one-third, which was expected," Dr. Henry says. "The growth performance was more variable ranging from a 3 percent to a 10 percent improvement, which is a surprising and substantial response."

Dr. Henry also points out that vaccinated pigs were less likely to fall below the desired slaughter weight at barn close-out. "The economic data from the multiple studies by the K-State PCV2 team demonstrated that pigs receiving two doses of vaccine saw a benefit of between \$3.85 to \$17.00 per pig when compared to non-vaccinated controls," says Dr. Henry.

The value of PCV2 vaccination was greater than originally expected because many pigs were subclinically affected with PCV2. PCVAD was not recognized as a problem in Kansas until

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2005, but when the K-State team tested for the disease in 2006, they found some unexpected results.

"We found the virus and affected pigs in every herd we examined, leading us to believe nearly all herds are infected with and affected by PCV2, even if some herds do not exhibit obvious PCV2 clinical disease," says Dr. Henry.

Immunization reduced the PCV2 clinical signs and mortality, as well as sub-clinical effects, which explains the improved growth performance. This means pork producers could see significant benefits even if they don't believe they have mortality due to PCV2 infections.

Dr. Henry says immunizing pigs with two doses of vaccine lowered the level of detectable virus in vaccinates versus controls and also decreased the lesions associated with the virus.

Timing and dose of vaccine clearly are important to achieve successful immunization based on studies conducted by the K-State team. Serology data from these studies suggested that the vaccine dose and suggested schedule on the label appear to provide the most consistent benefits.

Dr. Henry says more data needs to be collected on single-dose versus two-dose PCV2 vaccines, but notes that there was a definite difference in antibody response and an advantage in weight gain in one trial when the two-dose vaccine was compared to a one-dose vaccine and controls.

While Dr. Henry stresses the need for more research and cautions that there are still challenges to controlling PCVAD, he notes the pork industry is making headway.

"It is wonderful having tools that are effective against PCV2," says Dr. Henry. ◉

ABOUT STEVE HENRY:

Steven Henry is a veterinary practitioner working in the clinical veterinary group of the Abilene Animal Hospital of Abilene, Kan, specializing in diseases and health management of pigs. Dr. Henry has served on the U.S. Food and Drug Administration's Veterinary Medicine (AVMA) Advisory Committee, the AVMA Council on Biologic and Therapeutic Agents, as well as various National Pork Producer's Council (NPPC) and USDA task forces and committees. He has served as the president of the American Association of Swine Practitioners and has been honored by the American Association of Swine Veterinarians (AASV) with the Swine Practitioner of the Year and the Howard W. Dunne Memorial awards. Other honors he has earned include the Allen D. Leman Science in Practice Award and the KSU Distinguished Veterinary Alumni Award.