

HOG-UPDATE

VOLUME 26
Issue 1
May 2014

Introduction by Peter Vingerhoeds

I spoke with Dr. Ernest Sanford at Centralia Swine Research Day about the similarity between PED and TGE. He also mentioned PRCV providing cross protection for TGE.

It is worthwhile revisiting this topic so the industry is aware of why we are not currently seeing more TGE. It also highlights why we should be extra vigilant how to keep the virus out, and gives us hope for the future.

Can We Control PED Like We Did TGE?

**S. Ernest Sanford, DVM, Dip Path, Diplomate ACVP
Boehringer Ingelheim Vetmedica (Canada)**

From the 1960s through to the 1990s, TGE (transmissible gastroenteritis) was a disease causing severe, explosive diarrhea in all ages of pigs with high mortality in suckling pigs. Sounds a lot like PED, doesn't it? Yes, in its early days it was a lot like PED. However, something happened during the latter portions of that time period that relegated TGE from the scourge of decades past, down to a disease of only moderate concern as it is today. Here's what happened.

In 1984, Dr. Maurice Pensaert, virology professor at the Faculty of Veterinary Medicine, Ghent University, in Ghent, Belgium identified 68% of 265 slaughterhouse sows serologically positive to TGE virus (TGEV). This came as a complete surprise as Dr. Pensaert had been testing slaughterhouse sows at regular intervals for nearly 20 years (1968-1984) and had always found 12-24% of the slaughterhouse sows serologically positive to TGEV. These positives correlated very well with outbreaks of clinical TGE that had occurred during the winter months preceding the serological surveys. The 68% TGE-positive serologies in 1984 bore no such correlation with TGE outbreaks the preceding winter as the number of outbreaks in that winter had not been higher than in previous years.

Further investigations were launched by Dr. Pensaert leading to the discovery of a new TGEV-related, nonpathogenic coronavirus which infected the respiratory tract of pigs. Further studies revealed deletions in two areas of the TGEV genome giving rise to the different coronavirus. This new coronavirus cross-reacted with TGEV, but not with other known coronaviruses. The new virus spread rapidly across Europe and had become endemic in swine populations throughout Europe by the end of the 1980s.

It wasn't very long after, in 1989, the same or a very similar virus showed up in Indiana, USA and it also spread rapidly becoming endemic across USA and Canada by the mid-1990s. This USA virus also had two deletions along the TGEV genome, but surprisingly, the deletions were at slightly different locations along the genome. Nevertheless, it resulted in a similar transformation of the virulent TGEV into the nonpathogenic respiratory coronavirus. Furthermore, we were soon to learn that the new coronavirus cross-protected pigs against TGEV in both Europe and North America.

The new virus was named porcine respiratory coronavirus (PRCV) by Dr. Pensaert.

It didn't take long for veterinarians, producers and diagnosticians in Europe and North America to realize that outbreaks of TGE that had plagued the swine industry in previous years had subsided to become infrequent occurrences and when TGE outbreaks did occur they were of less severity than in the past. The link between the reduced occurrence and virulence of TGE outbreaks and seroconversion of the swine populations to PRCV was easy to make. PRCV was providing partial or near complete protection of pigs against TGEV.

An intriguing and an as-yet-unknown issue surrounds the possibility of similar deletions or some mutation to occur to PEDV to change it into a nonpathogenic coronavirus that cross protects against PEDV? It might be too much to ask for a second favourable fortuitous change like that to occur. It, however, is well within the realm of the molecular biologists to create just such a change in the PEDV genome to have that favourable outcome.

We have to wait to see if the gene jockeys who are very likely working on that angle right now will come up with the desired favourable outcome.

Summary

In 1984 the TGEV underwent a spontaneous transformation in the field via deletions of two genes giving rise to a nonpathogenic, porcine respiratory coronavirus (PRCV). PRCV spread rapidly throughout Europe and soon thereafter throughout North America. Fortunately for us, PRCV cross-reacts with and provides cross-protection against TGEV. So for the last 20 years TGE outbreaks have occurred infrequently and with less severity than in previous decades.

Some are wondering now about the possibility of PEDV, which closely resembles TGEV, undergoing a similar change, to become a nonpathogenic relative of PEDV that cross protects against PEDV and make PED become an insignificant disease. It might be too much to expect another spontaneous field transformation,

but it is very possible that the molecular biologists, with their various manipulations, could engineer deletions in the PEDV genome to create such a virus. Perhaps some of them are already doing exactly that right now.

PHASE 2

Phase 2 is our plasma free starter pellet designed to be fed to pigs averaging 6kg or weaned at 3 weeks. Phase 2 has been available to producers since 2008 for those who choose to feed an early starter of porcine free origin. Producers can expect intakes of 225 to 275 grams per day with 1:1 F/G over the first 10 days post weaning.

Recent Phase 2 results have shown ADG of 264 to 293 grams per day; feed conversion of less than 1.

Come visit us at the

ONTARIO PORK CONGRESS

Wednesday, June 18 – Thursday, June 19

Booth A20 in the Agriplex

HOG UPDATE is published in the interest of helping hog producers become more profitable. We welcome your comments. Our newsletter is available on-line at www.bsccaninutrition.com

BSC Animal Nutrition Inc.
R.R. # 4, St. Marys, Ont. N4X 1C7
Toll Free: 1-800-268-7769
Phone: 519-349-2190
Fax: 519-349-2191

E-mail: info@bsccaninutrition.com
Website: www.bsccaninutrition.com

BSC Representatives

Peter Vingerhoeds 519-229-8810
E-mail: peter@bsccaninutrition.com

Ben Dekker 519-899-4769
E-mail: dekker@xcelco.on.ca

Stuart Boshell 519-949-0149
E-mail: stuart@bsccaninutrition.com