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NEWS ABOUT POULTRY HEALTH PRODUCTS

An interview with
Kalen Cookson, DVM
Director of Clinical Research
Zoetis

> "The ability to protect against several diseases with one dose simplifies vaccine preparation and administration..."

Poulvac® Procerta® HVT-IBD-ND provides early immunity, convenience for producers

Q: Zoetis just introduced Poulvac® Procerta® HVT-IBD-ND, the company's third recombinant vector vaccine for poultry. Can you explain exactly what this vaccine does?

KC: The backbone of the vaccine is a herpesvirus of turkey (HVT), an avirulent virus that replicates in chickens and protects against Marek's disease (MD).

Genes from other viruses are inserted into the HVT backbone to help provide immunity against additional diseases. In the case of Poulvac Procerta HVT-IBD-ND, the inserts protect against infectious bursal disease (IBD) and Newcastle disease (ND) viruses.

Q: What are the advantages of recombinant HVT vector vaccines?

KC: HVT is widely considered to be safe. Recombinants and their inserted genes do not cause the reactions that sometimes occur with conventional live vaccines.

The ability to protect against several diseases with one dose simplifies vaccine preparation and administration whether the vaccine is administered subcutaneously at hatch or *in ovo*. Simpler usually means mistakes are less likely. The vector vaccines also help save on labor, especially when administered *in ovo* with well-established technology like the Embrex® Inovoject® system.

Q: There are other recombinant vector vaccines. Is there anything unique about Poulvac Procerta HVT-IBD-ND?

KC: All three of our recombinant vector vaccines — Poulvac Procerta HVT-IBD-ND, Poulvac® Procerta® HVT-IBD, and Poulvac® Procerta® HVT-ND — feature a unique construction developed by our team of top molecular scientists using the most advanced technology available. For instance, the insertion site — where the genes that confer protection against other pathogens are inserted into the HVT genome — differs from other vaccines in the same category. In fact, the insertion site is proprietary and patented. The vaccine also features a strong promoter that helps boost immunogenicity.

Q: How early is the onset of immunity with Poulvac Procerta HVT-IBD-ND?

KC: In birds that had received the vaccine *in ovo*, we found 90% IBD protection following challenge at 14 days of age.[1] For ND, 75% of birds were protected after a challenge at 14 days of age, and by 21 days of age, 95% were protected.[2]

continued

> "HVT remains in the bird and continues presenting itself to the immune system, providing life-long immunity."

The vaccine provided 83% protection against a virulent MD virus as early as 5 days of age.[3]

Q: Why is early protection important with these diseases?

KC: Early protection is critical to avoiding costly losses associated with immunosuppressive diseases such as MD and IBD, which predispose birds to secondary infections. With most US flocks now being raised without antibiotics, establishing early, robust immunity through vaccination is essential.

Moreover, maternally derived antibodies (MDAs) against IBD virus generally start to wane around 14 days of age. A vaccine that initiates immunity at about the same time helps close the gap in protection between the loss of MDAs and the onset of active immunity.

Finally, in higher ND challenge areas, a recombinant with an early onset of immunity can be a real asset either by itself or in concert with live ND vaccination.

Q: Is immunity with the vaccine long-lasting?

KC: It's well known that HVT remains in the bird and provides long-lasting immunity. That's especially valuable for long-lived birds. When we challenged birds that received Poulvac Procerta HVT-IBD-ND at 63 days of age, 100% were protected against IBD and ND.[4,5,6]

This is a very important consideration for winter programming since immunity from mild, live ND vaccines does not last long.[7]

Q: Why did Zoetis decide to develop a recombinant HVT vaccine with IBD and ND inserts?

KC: These are all costly, important diseases of poultry. They are highly contagious and lead to poor performance and condemnations. Providing a recombinant vaccine that helps protect against MD, IBD and ND also minimizes the dilemma of choice.

Q: What do you mean by the dilemma of choice?

KC: Two HVT vaccines can't be used together — they will compete and the loser will be less effective. By protecting against IBD and ND in one HVT vaccine, producers and their veterinarians no longer have to pick one or the other.

Here again, this is especially important for winter vaccine programming where it's all about survival against immune suppression and respiratory disease. If producers can have both recombinant IBD and ND in their programs, there is no live ND vaccine to compete with the all-important infectious bronchitis vaccine program; there's also better ND protection at processing.

Q: How would you sum up what producers can accomplish with a trivalent HVT vector vaccine?

KC: The ability to protect against three diseases with one dose brings unparalleled disease control and convenience to producers, especially when administered *in ovo*. It simplifies the vaccination process, minimizes labor needs and, most importantly, can help improve flock health.

[1] Data on file, Study Report No. B812W-US-18-A07, Zoetis LLC.

[2] Data on file, Study Report No. B812W-US-18-A06, Zoetis LLC.

[3] Data on file, Study Report No. B812R-US-18-A64, Zoetis LLC.

[4] Data on file, Study Report No. B814R-US-19-C18, Zoetis LLC.

[5] Data on file, Study Report No. B814R-US-20-D10, Zoetis LLC.

[6] Data on file, Study Report No. B814R-US-20-C74, Zoetis LLC.

[7] Dimitrov K, et al. Newcastle disease vaccines—A solved problem or a continuous challenge? Vet Microbiology 2017 Jul; 206: 126–136.

For more information, contact Kalen Cookson (kalen.cookson@zoetis.com) or your Zoetis representative.

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To contact *Poultry Health Today*:
editor@poultryhealthtoday.com
POULTRYHEALTHTODAY.COM

To contact Zoetis:
855.702.1036
ZOETISUS.COM/POULTRY

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