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Zoetis is at IPPE in booth B19021.

Poultry Expert Insights From Zoetis: *This content series is designed to inspire conversations around the expanding use of vector vaccines to address prominent disease challenges facing global poultry producers and veterinarians. Leading experts provide analysis and insights on relevant research and what they are seeing in terms of effective vaccination strategies that are working. This is the fourth in a six-part series from Zoetis.*

Think strategically in developing IBDV vaccination programs

PARSIPPANY, N.J., — Jan. 7, 2025 — Infectious bursal disease virus (IBDV) continues to be a leading cause of economic losses in the poultry industry, primarily due to immune suppression.¹ With the worldwide spread of IBDV and constantly evolving strains with varying virulence, vaccination remains a key measure to provide protection against IBDV, especially against early infections.¹

Developing an IBDV vaccination program should consider the severity and duration of immune suppression caused by the virus and may require the strategic use of several vaccine types, according to Kalen Cookson, DVM, MAM, DACPV, director of clinical research, Zoetis.

Timing of an IBDV challenge is a key consideration in creating a vaccination strategy, Cookson explained. Early infections before 2 weeks of age are often severe and permanent. From 2 to 3 weeks of age, the severity of an IBDV challenge can be variable depending on concurrent stressors or other immune suppressors. Late infections after 3 weeks of age can be moderate and temporary but can still have a significant impact if other disease challenges – such as infectious bronchitis, *Escherichia coli* or inclusion body hepatitis – occur during this window of temporary immune suppression, he added.

IBDV vaccine options

Cookson said there are three distinct options for IBDV vaccination in the hatchery:

1. **Recombinant vaccines:** modestly cushion the bursa and limit – but do not prevent – field IBDV replication.
2. **Immune complex vaccines:** cause a “take” but are also best at reducing field IBDV replication.
3. **Live vaccines:** complement maternal immunity and help bridge the gap to the onset of immunity from recombinant vaccine.

Depending on virus challenge pressure and levels of maternally derived antibodies, Cookson said these vaccine options may complement each other to strategically achieve IBDV management goals.

Live vaccines buy time for recombinants

Live IBDV vaccines are complementary to recombinant HVT-IBD vaccines, Cookson said, explaining that while it is not always necessary to give live IBDV vaccine(s) along with a recombinant vaccine, when field infection pressure is very high or the field virus is very aggressive, the addition of live IBDV vaccination to a recombinant program may help flocks overcome the field virus challenge.²

The reason is the live vaccine provides a blocking mechanism as well as rapid immunity to the birds with the lowest levels of maternally derived antibodies in a flock when they otherwise would start replicating the field virus, he said. This buys time for immunity from the recombinant HVT-IBD to kick in by delaying the field infection window.²

Intermediate vaccines also can be applied in the first week to help the transition from passive to active immunity and delay the field pressure to allow more time for the recombinant vaccine to provide the bursal and immune system “cushion”, Cookson noted.

Complementing recombinants with immune complex vaccines

Copy: The strength of recombinant vaccines is their cellular immune response and cushioning – not completely preventing infections but significantly limiting the number of cycles of infection and, therefore, tissue damage (atrophy, in this case) – which translates into protection against immune suppression from the IBDV challenge, Cookson said.

For immune complex vaccines, besides their convenience, their strength is in better limiting of field infection, better reduction of field infection pressure and amount of wild type virus that continues to be shared in the environment, he added. By managing IBDV

challenge levels more effectively, this “rotation” tool helps sustain year-to-year efficacy of the all-important recombinant vaccines.

However, the other side of the coin is, because it’s a live vaccine, there will be a bursal “take” – bursa sizes will be more variable than what is found when recombinant vaccines are used, especially in the three- to four-week range as the vaccine is starting to infect the bursas and cause some bursal atrophy, he said.

Surveillance keeps you informed

Through active bursal surveillance programs, Cookson said producers can monitor which IBDV strains they are dealing with, and at which ages, they are challenging their birds.

With that information, an IBDV vaccination strategy can be developed using the best tools in the toolbox – recombinant, live and/or immune complex vaccines – to minimize the severity of an IBDV challenge and limit immune suppression.

Reference:

¹ Alkie TN, Rautenschlein S. Infectious bursal disease virus in poultry: Current status and future prospects. *Vet Med* 2016;7:9-18.

² Ashraf S, Abdel-Alim G, Al-Natour MQ, Saif YM. Interference between mild and pathogenic strains of infectious bursal disease virus in chickens. *Avian Dis.* 2005;49:99-103.

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