S3-P58
SHIFTING VACCINATION PROGRAMS FROM A COMBINATION OF RHVT-ND/IBD AND TWO LIVE INTERMEDIATE IBD VACCINES TO AN IMMUNE-COMPLEX IBD VACCINE RESULTED TO THE DISPLACEMENT OF FIELD IBDV STRAINS IN LAYER PULLETS

J. Herreman [1], M. Legnardi [2], R. Van Leeuwen [1], S. Doner [3], N. Vandenbussche [4], M. De Gussem [5], M. Cecchinato [2], K. Koutoulis [6]

[1]*Ceva Animal Health, Benelux*
[2]*Department of Animal Medicine, Production and Health, University of Padua, Legnaro, Italy*
[3]*Poulpharm, Belgium*
[4]*Degudap, Belgium*
[5]*Vetworks BV, Aalter, Belgium*
[6]*Ceva Animal Health, Libourne, France*

Infectious Bursal Disease, also known as Gumboro Disease (IBDV), is an immunosuppressive condition which may cause clinical or subclinical infection when is manifested at the early stages of layer rearing, impairing the homogeneity of the growth and the immune status of the birds. Layer type birds are sensitive to Gumboro infection, and the negative impact may affect multiple performance parameters during the production.This study was performed in two phases and the aim was to investigate the prevalence of field IBDv strains before and after the use of an innovative immune-complex vaccine against Gumboro disease in layer pullets. The monitoring program was conducted in a Belgian layer pullet farm that previously reported production problems, including heterogenicity in growth and clinical signs with suspicion of Gumboro disease during the rearing period. In the first phase, three farms (A, B and C) with impaired growth and a fourth one (D), without performance issues, were selected to be monitored from February to September 2021. The pullets were vaccinated against Gumboro disease at Day-Old (DO) with rHVT-ND/IBD subcutaneously followed by 2 live intermediate Gumboro vaccinations through drinking water (DW) at 25 and 32 days of age.Blood was collected at DO, 3, 5, 7, 10, 13 and 16 weeks of age for Elisa serology using 2 different commercial kits (BioChek and VP2 kit from Innovative Diagnostics) and Bursa of Fabricius (BF) samples at 3, 5, 7, 10 and 13 weeks of age for PCR IBD including sequencing. Serology and RT-PCR were performed at PoulPharm laboratories (Izegem, Belgium) and at the Laboratory of Microbiology of the MAPS Department of the University of Padova (Legnaro, Italy) for VP2 sequencing.The serological results with anti-VP2 antibodies Elisa kit in all farms showed a gradual increase in average titers over the rearing period with positivity rate between 66 and 93% at 3 and 5 weeks of age and reaching levels over 30000 titers in most of the sampling points and farms between 10 and 16 weeks of age. At the same time, BioChek Elisa kit revealed the likelihood of a field IBDV infection at 13 and 16 weeks of age due to the increased titre levels above the threshold according to BioChek reference guidelines (12000 titers). All four locations had also individual maximum titers that at one point during rearing period exceed the same threshold limit. Molecular analysis performed in PoulPharm for detection of positive/negative samples and in MAPS for partial VP2 sequencing revealed that all farms (A to D) were found positive with a reassortant strain just prior to the first DW vaccination with the live vaccine. In the second phase, farms A to C were vaccinated with the novel layer-specific immune-complex IBD vaccine Novamune (vaccine strain SYZA 26, Ceva Animal Health) for two consecutive cycles between November 2021 and March 2022. PCR analysis showed that during this first introduction of Novamune, no IBDv field strain was identified but only the vaccine strain was isolated. However, between August and December 2022, when farm C was again vaccinated with rHVT-ND/IBD subcutaneously at DO followed by 2 live intermediate Gumboro vaccinations through DW, a reassortant strain was found at 3 weeks of age, whereas farms A and B vaccinated with Novamune remained vaccine strain positive. In conclusion, a combination of rHVT-ND/IBD and two live intermediate IBD vaccines was unsuccessful to prevent IBD field infection, whereas the use of Novamune blocked the bursa of Fabricius and reduced the risk of disease infection by displacing previously present IBDV field strains.

Keywords
infectious bursal disease virus; immune-complex vaccine; layers