

# Infectious bursal disease eradication programme

In 1993, a low-virulence strain of infectious bursal disease (IBD) was identified in commercial poultry in New Zealand. As a result, in 1994 an IBD eradication programme funded and supervised by industry was put into place. Both active and passive surveillance are important parts of the programme, with passive surveillance taking place both on farms and in processing plants. No cases of IBD have been confirmed in commercial poultry since 1999.

During 2018, the two private poultry laboratories screened 17,171 blood samples collected under the whole-flock testing programme. There were 663 submissions to poultry laboratories. Samples were screened using the IDEXX FlockChek ELISA.

There were 328 IBD ELISA reactors: 138 reactors from 79 flocks that were re-tested (as the prevalence of reactors was < 50 percent). At retest, 13 flocks had ELISA positives and samples were sent to MPI for virus neutralisation test (VNT).

A total of 75 reactors from 11 flocks were followed up directly and sent to MPI for VNT (as the prevalence of reactors was > 50 percent). Seventeen reactors were not re-tested as the birds had been processed. (Note: where the poultry have been sent to slaughter the next placement of poultry in the shed is tested.)

Positive reactors in the VNT were investigated further by MPI's IncurSION Investigation Team (Rawdon et al., 2019). In addition, as part of the export testing requirements, 83 reactors were followed up with PCR testing by MPI.

These investigations, which included assessment of health/production parameters, blood sampling, serology, collection of bursas for histology and PCR testing, all led to the conclusion that IBD type 1 was not present. Reports are published quarterly in *Surveillance* as part of the Diagnostic and Surveillance Services report of suspect exotic disease investigations.

## IBD-2 in New Zealand

Investigations were carried out on three unrelated free-range chicken broiler farms as part of ongoing efforts to inform and validate New Zealand's IBD surveillance programme (Rawdon et al., 2019). The investigation involved historical samples that had been taken in 2015–2016 from three free-range broiler farms with low-level ELISA reactors detected via the poultry industry sero-surveillance programme. The farms all had healthy flocks (assessed throughout the ~6-week production cycle) with no clinical signs, increased mortality or pathology indicative of IBDV infection. Mortality figures were consistent with industry standards, with all barns on all farms demonstrating excellent performance and low mortality figures.

Histopathology of bursas from seropositive flocks was mostly within normal expected limits, with occasional bursas showing one or more changes, including mild-to-moderate lymphocyte depletion, cryptosporidiosis, or focal bacterial-associated heterophilic inflammation, and rare peri-follicular haemorrhagic change (thought to be consistent with electrical stunning prior to slaughter). There was no evidence of generalised necrosis and atrophy of bursal follicles as would be expected from pathogenic IBD infection.

A cross-sectional serological survey of all barns on every farm was carried out, and cloacal swabs and fresh and fixed tissues, including bursa, spleen and caecal tonsil, were collected on-farm and/or at processing. The investigation excluded the presence of pathogenic IBD serotype 1 viruses (IBDV-1) but identified a non-pathogenic IBDV serotype 2 (IBDV-2) virus.

As part of the investigation into potential sources of virus, cloacal swabs collected from wild mallard ducks (*Anas platyrhynchos*) during MPI's Avian Influenza Surveillance Programme were also tested, with molecular sequencing indicating a high similarity to the virus detected in the poultry broiler farms.

The investigation concluded that IBDV-2 was the most likely cause of the sporadic low-level seropositivity seen during the programme (Ashraf et al., 2006). Although it is not possible to explain the origin of the virus in the broilers, phylogenetically similar IBD-2 viruses were detected in both the free-range broilers and wild New Zealand mallards. It is reasonable to expect the occasional introduction of IBD-2 from wild birds, especially under a free-range system.

These findings support New Zealand's claim that Gumboro disease (also known as infectious bursal disease or IBD) is absent from commercial poultry, and will pave the way for the development of serotype-2-specific serological and molecular assays. Such tests will enable the rapid exclusion of IBDV-1 in poultry flocks identified with serum reactors through the ongoing IBD sero-surveillance programme.

## Biosecurity response to IBD-1 detection

MPI, in partnership with the poultry industry, is responding to the detection of IBD-1 virus in an enterprise group of chicken layer farms. Routine surveillance by the poultry industry in June 2019 detected seroconversion for IBD virus on a chicken farm near Dunedin. Preliminary VNT and molecular testing as part of an MPI investigation suggested the presence of IBD-1 virus, which was confirmed by molecular analyses at the OIE reference laboratory (Ploufragan-Plouzane, France). A flock on a second farm directly linked to the index premises and part of the same enterprise group subsequently tested positive. No clinical disease or change in production parameters have been evident in either of the affected farms. Movement controls have been applied and tracing and testing of in-contact properties is in place. A nationwide delimiting survey of commercial poultry farms is underway. MPI is also undertaking a pathway assessment, but as the findings are isolated to premises with a high biosecurity status and there

Continued on page 44

Continued from page 42

are no clinical signs, MPI is considering whether this finding may be vaccine-associated, as is suspected with the previous incursion in 1993. For updates on this emerging situation please refer to the OIE WAHIS interface:

[https://www.oie.int/wahis\\_2/public/wahid.php/Diseaseinformation/WI](https://www.oie.int/wahis_2/public/wahid.php/Diseaseinformation/WI)

## References

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