

Infectious bronchitis: awareness in broiler production

In the first article, we described the key points of infectious bronchitis (IB): coronavirus cloud, major symptoms and lesions in broilers, cross-protection demonstration with ciliostasis score explanation, caecal tonsils as receptor and contamination memory organ.

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This last key point is the centre of our knowledge in IB awareness. The Veterinary Technical Support team must always understand and have a clear view of the real situation in broiler farms and in the slaughterhouse. This article will consider the following points:

- When to conduct sampling?
- How to conduct sampling, and interpretation?
- Which analysis to request?

When to conduct sampling?

● **The good sampling time:**
In broiler production, the Veterinary Technical Support team needs first to detect coronavirus field strains to reduce the

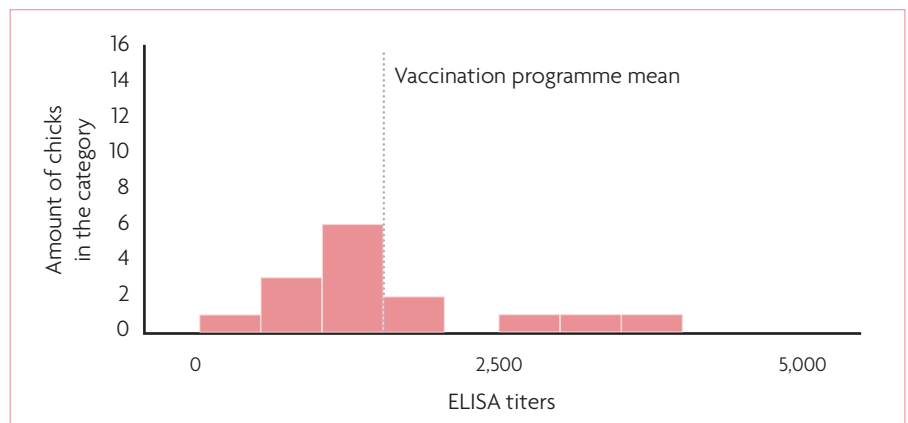


Fig. 2. Analyses of individual serology titers, CV% and GMT is key in IBV monitoring and for understanding the IB situation.

impact of bronchitis disease and to adapt the best IB vaccination programme. Secondly, they need to take control of IB immunisation with vaccines.

In most countries, broiler age at catching time is before 50 days old so with IB vaccination from the hatchery with correct application of Cevac IBird + Cevac IB Mass L, the broiler will be immunised for their entire life. The three key moments to do sampling:

- At five days post vaccination for vaccine take control.
- At disease time (respiratory or diarrhoea symptoms) to check coronavirus in trachea or kidney.

- At catching time to check coronavirus exposure in the caecal tonsils (field strains and vaccine strain).

How to conduct sampling, and interpretation?

At the slaughterhouse or at catching time in the broiler farm, the Veterinary Technical Support team should collect around 15-20 serum samples per house (up to 50 samples for larger farms, with a minimum of five serum samples per house) and 20 caecal tonsils.

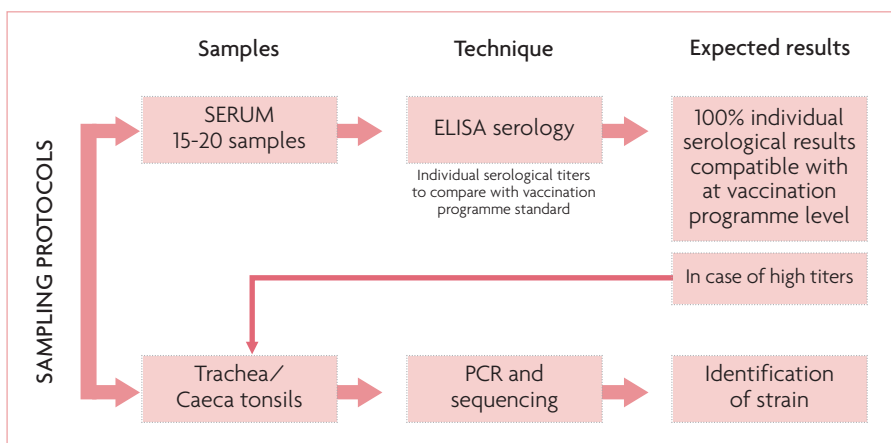
In the first stage, the serum samples should be sent for serology analysis, and caecal tonsils stored in a frozen condition (see Fig. 1).

In case of high serum titers, the stored caecal tonsils must be sent for PCR and sequencing analysis.

● **Individual serology:**
Using the IB vaccination programme as a base, the Veterinary Technical Support team can check serology titer results, and compare them with the expected results according to the vaccines used.

With the analysis of the individual serology titers, rates over 20% of serum samples higher than the vaccination programme standard can indicate that the broiler flock is exposed to a coronavirus field strain.

Fig. 1. Presence of IBv with sampling at slaughterhouse.



● **Serology interpretation:** Note that in an integrated broiler operation, the Veterinary Technical Support team can summarise the general situation using the GMT, but it is important to keep in mind that it is only an average and epidemiological view.

● **The caecal tonsil PCR to confirm IBV strain:** For the positive flocks identified by individual higher than standard seroconversion, an investigation of caecal tonsils by PCR for IBV strains identification should be conducted. In this way the IB vaccine strains and field strains can be identified in the same caecal tonsil or different caecal tonsil in the same flock.

Which analysis to request?

● **Serology analysis and standard:** The results are defined for 35-45 days old broiler (minimum 30 days old).

● **PCR and sequencing analysis:** Always for caecal tonsils, and on trachea or kidneys in case of respiratory or diarrhoea signs. The Veterinary Technical Support team should request coronavirus strain identification, when the sample is positive.

IBV epidemiology

The Veterinary Technical Support team can follow up the movement of IB with a map at farm level.

However, to understand and to prevent the IB crisis, it is important to have a global view and follow up the evolution over time. Ceva Santé Animale decided to

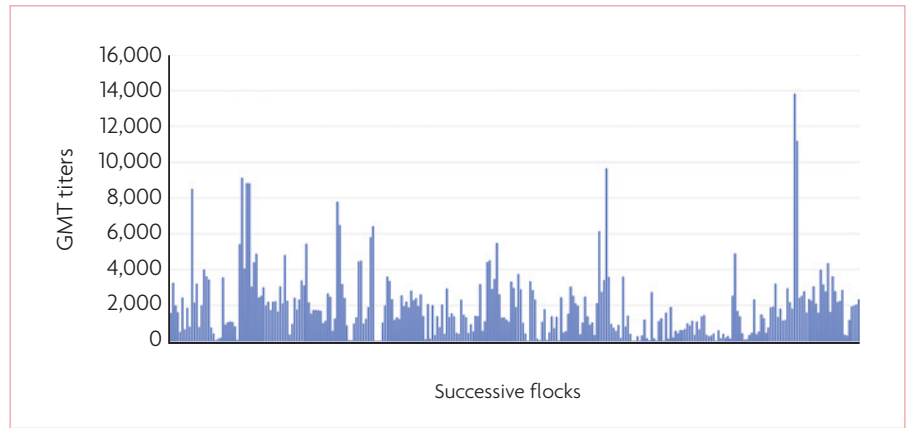


Fig. 3. Infectious bronchitis GMT titers (ELISA BioChek) 2020-2021.

Vaccination programme	Limits	ELISA Kit		
		Biochek	Idexx	ID Vet
Cevac IBird + Cevac Mass L	Expected	2,000-4,000	>1,500	3,000-5,000
	Field challenge	>3,000 (GMT) >4,500 (20% individual samples)	>2,500	>5,000 (GMT) >5,000 (20% individual samples)

Table 1. Interpretation of serology titers in vaccinated broilers.

continuously screen the IB situation around the world as you can see in the map in Fig. 4.

Conclusion

The epidemiological survey is the first part of infectious bronchitis prevention. With continuous awareness, Ceva can follow up the coronavirus evolution to support

customers in implementing an IB vaccination programme. Ceva's added value of worldwide and country knowledge of IB disease control can help the Veterinary Technical Support team to anticipate the pressure and challenges of IB field strains. ■

References are available from the authors on request

Fig. 4. Global view of the infectious bronchitis crisis (2020-2021).

