

In ovo vaccination and data collection: a recipe for success

Successful in ovo vaccination depends on many factors, such as biosecurity, egg quality, equipment performance, and maintenance programs, etc.

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Data allows fact-based decisions to be made and helps with process improvement, short term corrections and mid to long-term strategic movements, among others.

The importance of in-ovo vaccination data collection and analysis is therefore paramount in order to succeed in the process. There are some key concepts to bear in mind:

Hatchability percentage is not the best indicator

Think about a hatchery with 85% hatchability for a particular flock after in ovo vaccination. Is this a good number? We do not know until we investigate the origin of the remaining 15%.

Imagine we analyse the data by performing eggs breakouts and identify two cases (Fig. 1).

In Case A, we see that out of the 15%, 6% is caused by early mortality, 6% by malformations and malpositions, while 2% is late mortality and 1% due to cull chicks.

In Case B, the 15% is split into 2% early mortality, 2% malformations and

malpositions, 6% late mortality after injection, 2% egg breakage at transfer and 3% cull chicks.

For the same final hatchability percentage, we can see two very different scenarios.

Case B shows a very clear inefficient in ovo vaccination process negatively affecting our hatchery performance.

Case A shows a situation where resources need to be focused on the early stage of the incubation process, storage, egg transport, etc.

Everything that happens to the egg before the treatment at transfer occurs will have an impact on hatchability percentage (fertility, storage, incubation, etc) and will not have any correlation with the treatment at transfer itself. Moreover, not all the late embryos are a potential day old chick; malformation and malpositions will abort under any circumstances.

The embryo mortality categories need to be measured and monitored on a regular basis in order to have accurate data and clear understanding about the impact of in ovo vaccination in the overall hatchery indicators.

Focus on percentage hatch of viable embryos at transfer

A very simple way to have a precise and accurate understanding of the in ovo impact is to check the percentage hatch of viable embryos at transfer time by comparing some vaccinated trays versus some non-vaccinated

trays. At the breakout, just discard all the early and middle mortality embryos, malformed and malposition embryos, incubation related mortality, and compare the performance of viable late embryos at transfer:

- Late mortality: only embryos around 17-18-19 days of incubation.
- Dead pipped and live pipping eggs.
- Cull chicks.
- Transfer egg breakage.
- Rotten and explosive eggs (if any).

By comparing these categories on vaccinated versus non-vaccinated trays of the same flock, and calculating the percentage of hatch out of viable embryos at transfer, we will have a very clear picture and data base to identify potential weak areas of the process and to improve the results.

Fig. 2 shows 16 months of data collection where more than 1,400 flocks of Ross 308 and Cobb 500 of 26-60 weeks old were compared.

Strictly comparative analysis of 10,000 incubation trays show that, if factors affecting In ovo vaccination are controlled, there is no hatchability impact due to the in ovo process.

A safe and efficient in ovo vaccination process has a negligible impact on the previous categories, meaning very little impact on final hatchability percentage.

But only by performing data collection and data analysis activities, can we have a clear understanding of the situation and take fact-based decisions. ■

Fig. 1. Egg breakout analysis.

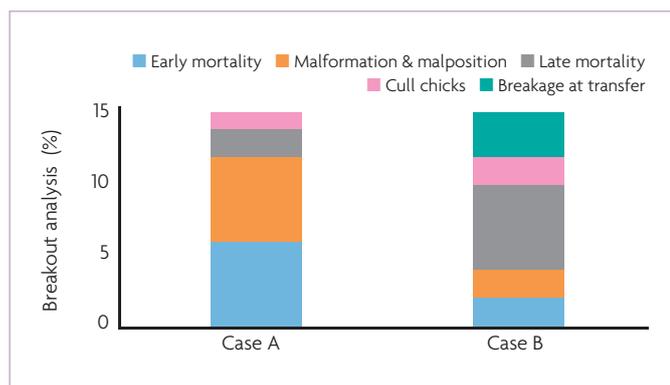


Fig. 2. In ovo performance in 16 months of data collection.

