

Ensuring good quality of vaccination during challenging times

Vaccination is a basic and relevant control strategy to reduce infectious disease and its economic impact, especially in an antibiotic-free age. Only proper vaccine administration will elicit the needed coverage and protection of the flock. The question is how can we make sure that good vaccination is performed, especially during these challenging times?

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To maintain and excel in the goals of the poultry industry, such as high productivity, best product quality, and reasonable production costs, it is necessary to implement a strong and effective health programme.

The negative impact of infectious diseases can be accounted for by increased mortality and decreased productivity at farm level.

In addition, the decreased bird homogeneity and increased condemnation at slaughter greatly affect profitability.

Previous practices of therapeutic treatment or preventative medication are no longer acceptable. Poultry producers are today challenged to produce without the use of antimicrobials (antibiotic-free). The increased concern regarding antibiotic resistance has been a strong advocate against the indiscriminate use of antimicrobials in the animal industry; it is clear we need to reserve effective antimicrobials for the treatment of human infections.

Challenges emerging from the current Covid-19 pandemic will result in an even stronger focus on human health and subsequent stronger pressure to reduce the use of antimicrobials in animal husbandry.

The first line of defence in disease control is to prevent the

introduction of the disease in susceptible flocks, to minimise further spread of a given disease through strict biosecurity, inducing immunity by proper vaccination and conduction of surveillance on field challenges.

It is clear that proper vaccine administration is fundamental to achieve an adequate coverage and protection of the flocks. Improper vaccination can result in the entry and circulation of pathogens, exposing susceptible flocks to infection and disease, and the consequent decrease in productivity.

Vaccination at the hatchery is the best option

Vaccination can be performed on the farm, but it can also be conducted in the hatchery. Growing acceptance and adoption of hatchery vaccination has been observed in recent years.

Numerous advantages are obtained by adopting hatchery vaccination: adequate cold chain and vaccine management, standardisation, uniformity and consistency of vaccine administration by well-trained and experienced personnel, resulting in high standards of vaccination quality and subsequent expected levels of flock protection.

Additionally, there are reduced labour costs and increased animal



Hatchery vaccination by spray in line equipment in a hatchery in Europe.

welfare practices have played a significant role in the acceptance of hatchery vaccination reducing bird handlings and stress associated with field vaccine administration.

Another important contributing factor has been the adoption of new advanced technology vaccines. In fact, in 2005 only 2% of the broilers in the world were vaccinated against Gumboro disease with an immunocomplex or vector vaccine.

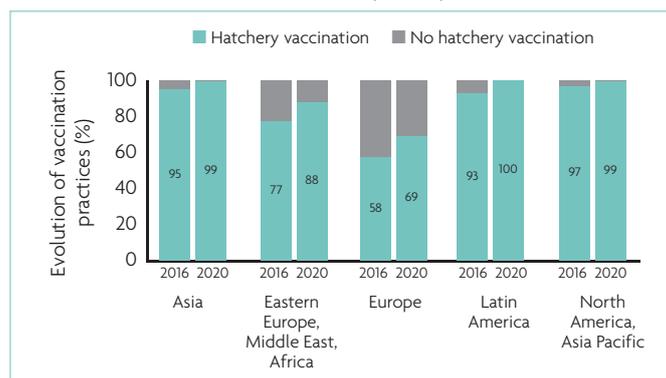
Today, about 45% of broilers are vaccinated with that type of vaccine against different diseases. Currently, bivalent or trivalent vector vaccines are available to be administered at the hatchery, by a single shot administered via in-ovo or at day of age, simplifying and reducing the

need for field vaccinations even more.

As described in Fig. 1, hatchery vaccination is today the standard approach for routine vaccination worldwide. When comparing the hatchery vaccination practices over a four year period, precisely 2016 versus 2020 in different regions of the world, we observe an evident consolidation and standard practice in North America (99%), Latin America (100%) and Asia (99%) and also a positive trend of expansion of hatchery vaccination in more traditional regions such as Europe, Middle East and Africa (+11%).

Another reason for this evolution is the better control and standardisation of the overall vaccination process. Indeed, vaccination in one place for mass application conducted by well-trained personnel operating modern vaccination equipment, will lead to higher vaccination quality and better animal welfare practices compared with different types of on-farm vaccination.

Fig. 1. Evolution of hatchery vaccination practices (subcutaneous and in-ovo route) from 2016-2020 in different regions. Equal number of hatcheries in 35 countries accounting for 85% broiler population worldwide. Source: Ceva Global Hatchery Survey.



Controlling the good process of vaccine administration

For any industry or farming process, the implementation of good procedures, training, execution and control methods are critical. This is equally the case for vaccination in the hatchery. In this sense, the Ceva

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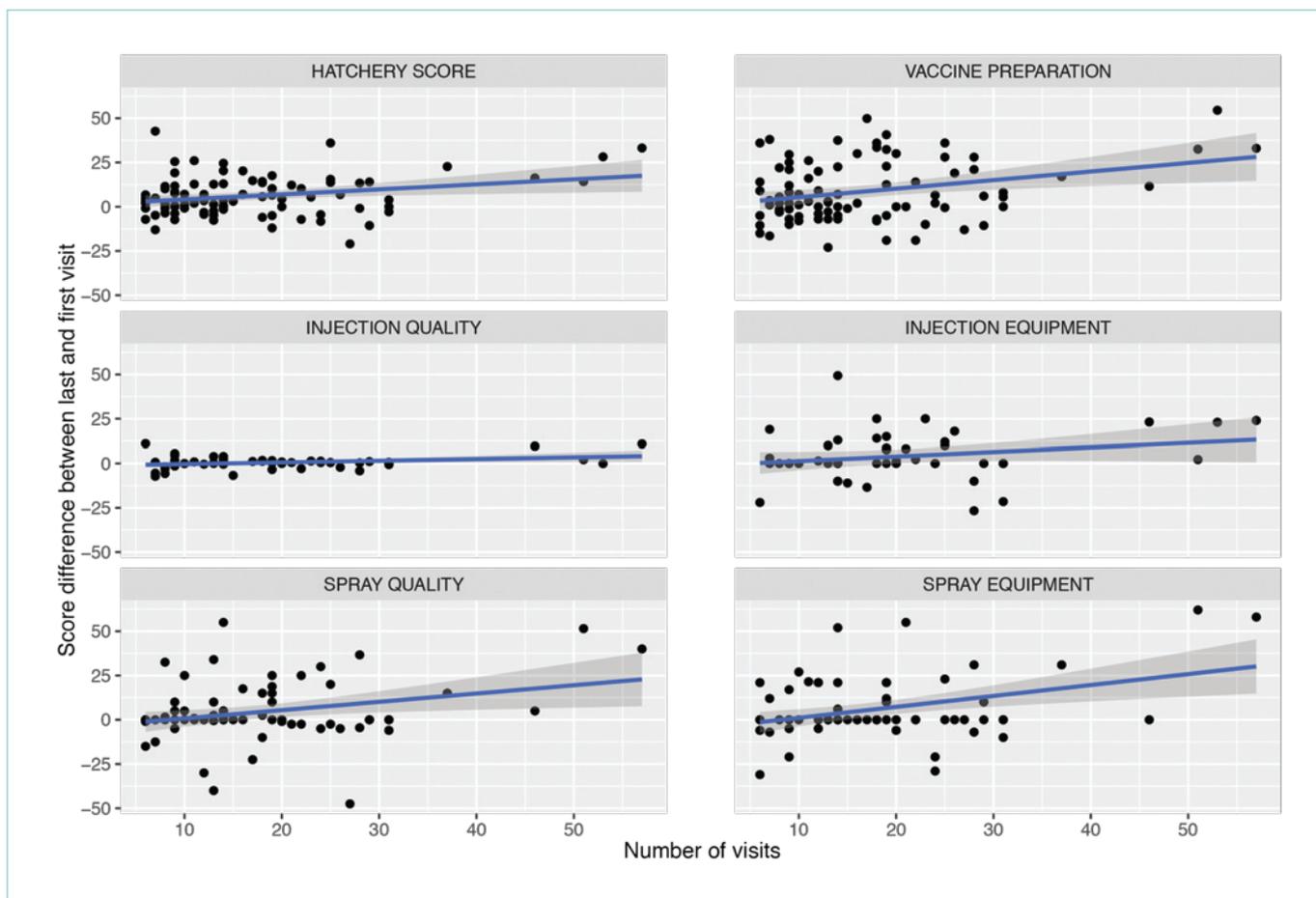


Fig. 2. The variation in the scores between the first and last visit plotted against the number of visits. Source: G. Franzo, W. Swart, W. Boyer, D. Pasotto, G. Ramon, K. Koutoulis, and M. Cecchinato. 2020. No good vaccination quality without good control: the positive impact of a hatchery vaccination service program. Poultry Science 99: 2976-2982. <https://doi.org/10.1016/j.psj.2020.03.017>.

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Hatchery Immunization Control Keys (C.H.I.C.K.) programme of Ceva Santé Animale was born more than 10 years ago and it is today the reference of vaccination services worldwide. This programme involves specialists visiting the hatcheries on a frequent basis, to audit the vaccination process, to secure vaccination technology maintenance, to train the hatchery personnel, and to improve their performance.

The activity of these qualified professionals is structured by a Quality Code of Practice for which compliance is testified by an independent external auditing company (Bureau Veritas Group).

During the audits, the different parameters are scored, using a dedicated mobile application, and the results are stored in a dedicated database. The results are reported in a graphical way to the hatchery management, comparing them with past performances and as benchmarking.

The hatchery status is discussed with the responsible personnel and the managers, potential actions are suggested and the results followed up in the next visit.

On-the-spot training and improvements and the reporting to

the hatchery management results in the improvement of the critical points.

The positive effect of a monitoring programme on vaccination quality

Research into the C.H.I.C.K. monitoring programme was recently performed by the University of Padua (Italy) and the University of Thessaly (Greece) in cooperation with Ceva Animal Health and published in the Poultry Science Journal in 2020.

This research looked at the effect of 1,678 visits that were performed over a period of four years in 169 hatcheries, located in 11 European countries. The effect of multiple audits on hatchery vaccination performances were assessed.

The results showed a significant positive association between the variation in global and process-specific hatchery scores and the number of performed audits. A significant trend in the improvement of the performance was observed visit after visit (Fig. 2).

Fig. 2 shows the variation in the scores between the first and last visit plotted against the number of

occurred visits, that is positively representing the improvement particularly in vaccine preparation and spray administration quality indicators.

Injection equipment was stable because the equipment was installed for a long time and the impact on the improvements is less visible in a routine way.

The authors have concluded that the widespread application of this approach could lead to a significant improvement in vaccine administration performance, with direct consequences on infectious disease occurrence and animal performance and indirectly on therapeutic and control-related costs.

Adapting the monitoring services in a new context

Since the implementation of the C.H.I.C.K. programme by Ceva more than 10 years ago it has proven its value for hatcheries, farmers, integrations, and poultry meat producers. Today, more than 175 well trained specialists in 40 countries are performing audits and supporting hatcheries in more than 60% of the hatcheries worldwide. This results in

over 8,000 highly valued audits and reports annually.

During these challenging times of Covid-19, our teams are actively adapting their visitation schedules and activities according to customer constraints.

In that sense, standard operational procedures (SOP) have been made available globally to promote physical distance and the use of personal protective equipment when visiting hatcheries. All this is in order to limit any risk of contamination and protect not only our teams but also hatchery personnel.

In summary, to ensure effective disease protection of chickens, hatchery vaccination is by far the best option. This is especially the case when this hatchery vaccination is complemented by an adapted monitoring programme that takes care of the appropriate training of personnel, the proper functioning of the equipment and the follow-up in corrective actions for process improvement.

As was shown in recent research, vaccination monitoring will result in a significant improvement in the vaccination quality, the protection of the birds and ultimately in the economic performance of the companies involved. ■