



QUALITY ASSURANCE OF HATCHERY VACCINATION PRACTICES



Ceva Animal Health makes available the C.H.I.C.K Program Quality Code of Practice to their affiliates for the control of good hatchery vaccination practices in poultry.



CT814 C.H.I.C.K Program
Quality Code of Practice
CONTROLLED BY BUREAU VERITAS GROUP

**How the C.H.I.C.K Program[®]
helps with continuous
improvement of the
hatchery process**

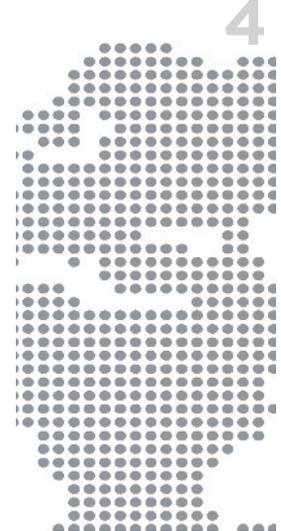
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EDITORIAL

Since its launch in 2009, the C.H.I.C.K Program hatchery vaccination service has been implemented in hundreds of hatcheries around the world guided by a dedicated team of specialized professionals. About 4 years later, innovative information technologies were introduced to facilitate the control and monitoring activities in hundreds of hatcheries. That was a revolution.

More recently, in November 2016, Ceva achieved a notable first for the animal health industry as the successful implementation of this service program received internationally recognized quality approval from the international testing and certification company, Bureau Veritas Group. From that moment, Ceva made available the C.H.I.C.K Program Quality Code of Practice to their affiliates for the control of good hatchery vaccination practices in poultry. Now, less than one year later, 8 countries in 4 different continents have passed quality control audits to demonstrate their compliance with our international standard; 3 more countries are under assessment at the time of writing.

So, taking advantage of innovative information technologies and a new quality system in place validated by an independent certification company, we now introduce the concept of Quality Assurance of Hatchery Vaccination Practices; but how can these be translated into real benefits for poultry professionals? To answer that question, we have developed this supplement where, with full respect of confidentiality, we share with you at least 3 years of findings (2014 up to present, 2017) on hatchery vaccination practices in over 1,340 hatcheries visited, for more than 17,850 audits as part of the C.H.I.C.K Program in 40 countries worldwide. You will find here the results of our analysis, some case studies, customer testimonials, an update of our progress on the implementation of the Quality Code of Practice and more.

We wish you fruitful reading,

*Ceva Santé Animale, Corporate Poultry Franchise
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Ceva vaccination services specialists during in ovo C.H.I.C.K Program training about chick quality assessment

1. Ceva's C.H.I.C.K Program hatchery services

The more basic vaccination services program shall ensure that qualified professionals visit customer hatcheries on a regular basis. On these visits a number of tests should be performed to control and, more importantly, to train hatchery personnel for the good hatchery vaccination practices, meaning storage, preparation and administration of vaccines. However, without a well defined program in place, a pre-agreed schedule of hatchery visits, the availability of pre-established Standard Operating Procedures and high qualified personnel to train people, the real improvement in the process cannot be achieved. Indeed, this is all encompassed in Ceva's C.H.I.C.K Program (Chick Hatchery Immunisation Control Keys) that focuses on vaccine care, vaccination techniques, equipment care, auditing and monitoring and expertise and education. So, at the end,

the hatchery can have all chicks properly vaccinated before they are sent to the farms every time.

Working for continuous improvement with the right tools

Basic actions as listed below can provide high value to hatchery management and to the integration.

- **Continuous follow up: monitoring the vaccination process and results**

The performance of the vaccination process and its evolution over time needs to be followed. These trends



Control of dosing accuracy using a graduated cylinder for each nozzle of the sprayer.

form the basis of a continuous improvement plan that is set by the company. Having an effective vaccine administration will reduce population susceptible to diseases, which increases profitability of poultry producers.

Fig. 1 shows an example where the monitoring of the percentage of vaccination efficiency (%) in different hatcheries provides a valuable indicator of performance and evolution of objectives. As an example, the outcome of an improvement of 4% (4 points) of vaccination efficiency in a company size of 600,000 chicks per week, represents more than 1,152,000,000 more birds well vaccinated delivered per year. That translates to better protection and consequently better flock performances.

● **The reporting of improvements: giving customers real time indicators**

Getting real time indicators about the quality of the

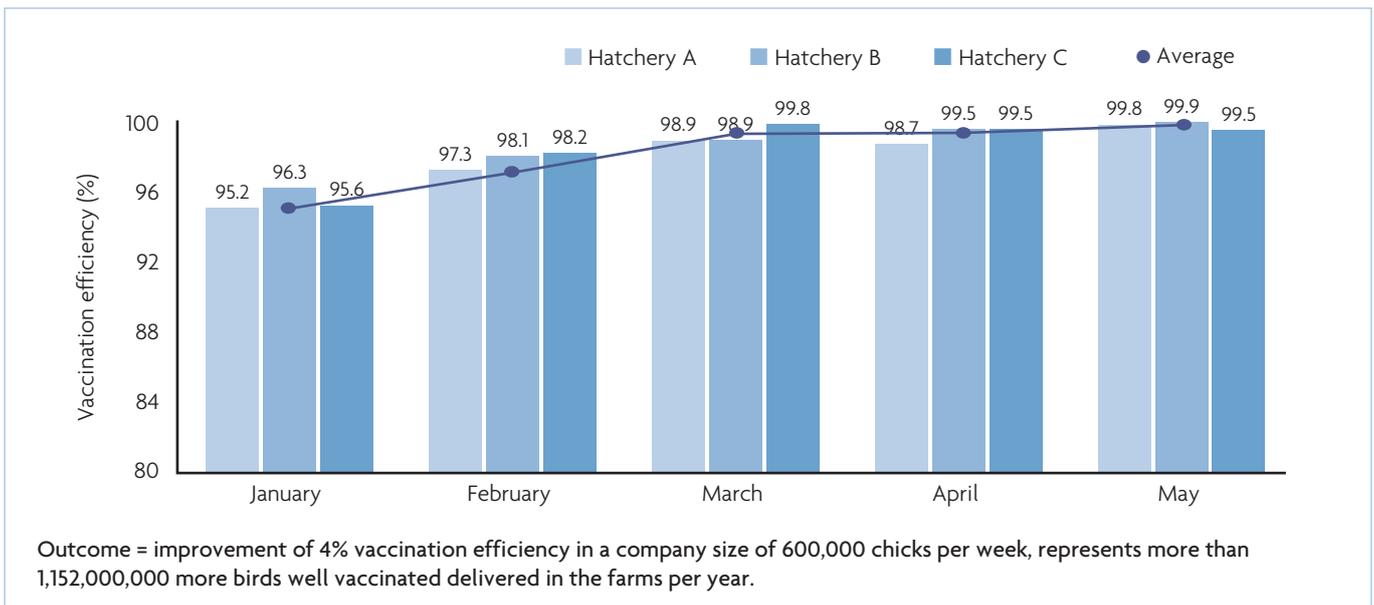
Table 1. Dosing accuracy control for spray vaccine administration.

Under dosing	Overdosing
Hatchery size: 40 million day old chicks per year	Hatchery size: 40 million day old chicks per year
Under dosing = 15% on 10ml per crate (-1.5ml) during one month	Overdosing: 15% on 10ml per crate (+1.5 ml). Example vaccine price at €6/1000 doses
Outcome = 3 million day old chicks at risk so about 150 houses of unprotected chickens	Outcome = investment of €276,000 per year with plus €36,000 per year in extra vaccine doses

vaccination process is paramount to hatchery managers to make informed decisions. The faster the hatchery managers get results of an audit on the vaccination process, the faster the corrective actions will be implemented. During a hatchery vaccination audit, a system of points is implemented for each stage of the vaccination process: vaccine preparation, administration quality, equipment care, dosage accuracy, speed of vaccination among others. All the scores are then combined for a final score up to 100% for quick interpretation by managers.

Table 1 shows an example where, during a visit, one of these parameters, the dosage accuracy, was evaluated. The negative outcome and economic losses due to dosing discrepancies at spray vaccination are shown.

Fig. 1. Example of monitoring the vaccination efficiency (%) in 2017. Overall vaccination efficiency improvement in three different hatcheries over five months of continuous follow-up.



● **Sharing information easily with guarantee of full respect of confidentiality**

Data is the lifeblood of the modern hatchery. Accurate data is required to effectively manage operations. Using the C.H.I.C.K Program app, vaccination key performance indicators are monitored and following a routine service visit, the data is instantly shared. Regular technical reviews can then take place with extended teams and remedial actions taken. All data is also processed in the C.H.I.C.K central database to be used anonymously for industry-wide benchmarking. Examples of utilization of this data are shown in Fig. 1, in the 3 case studies and in the global findings about hatchery vaccination practices, presented later.

Case studies

In order to illustrate better how the C.H.I.C.K Program helps producers to improve results, three real case studies are described.

● **Case 1. Spain, January 2017. Preparation of frozen Marek's cell associated type of vaccines**

During a visit for a hatchery vaccination using Marek's frozen type of vaccine, very important deficiencies affecting the vaccine viability and the safety of personnel when manipulating liquid nitrogen were observed and described in Fig 2. First to be observed was the use of saline solution for the reconstitution of the frozen

Fig. 2. Case 1. Spain. January 2017. Preparation of frozen Marek's type of vaccines.

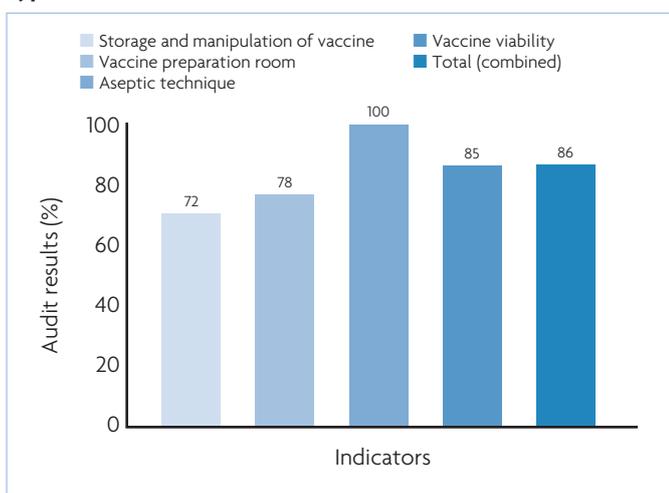
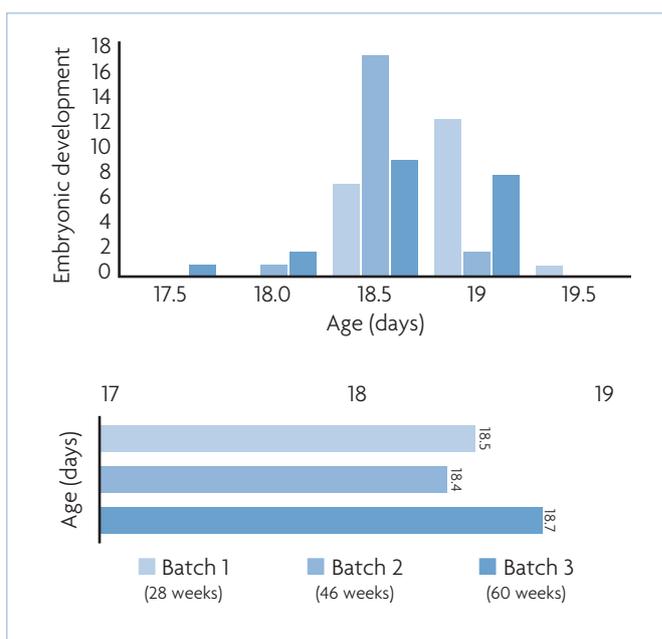


Fig. 3. Argentina, April 2017. Assessment of embryonic development before in ovo vaccination. Example of indicators in the in ovo C.H.I.C.K Program.



vaccines instead of the specific diluent bags for Marek's type of vaccines. Since the use of a diluent other than that indicated may affect the viability of the vaccine virus and consequently reduce the vaccine titers of the frozen vaccine, the score related to 'vaccine viability' is penalized (85%) and the recommendation immediately given.

Additionally, in regard to the handling of the frozen vaccine, the operators did not make use of individual protective materials such as cryo-gloves and face-shield during the removal of the vials from the liquid nitrogen tanks in order to avoid damages such as burns and other lesions to the hatchery personnel. This brought the score of 'manipulation of vaccine' as low as 72%. Finally, another finding was the non-agitation of the vaccine bags during the vaccination, this is very important in order to avoid the precipitation of the cells and therefore guarantee the homogenization of the solution. Then, it was recommended to do the agitation of the bags gently every 15 minutes. Because of those deficiencies, the total score recorded was 86%. Fortunately, all steps related to 'aseptic technique' were respected – the score being 100% for that.

● **Case 2. Argentina, April 2017. Assessment of embryonic development before in ovo vaccination**

A company decided to start in ovo vaccination. For the in ovo vaccination process, a complete service package, the

in ovo C.H.I.C.K Program is defined to control and monitor the critical factors affecting the process, from the egg sanitary status at reception, to hatchability assessment and chick quality control, including embryo age diagnosis, injection technique, among others. In this case, in order to evaluate the embryonic development and homogeneity of the different breeder's origins, using a well defined protocol, a number of eggs located at different positions of the incubation trays were randomly selected.

According to the references, the age of 18.5-19 days of embryonic development is the optimal time to perform the in-ovo vaccination, the range between 18-19 days being the ideal interval for the process. The results showed a homogeneous embryonic development (Figs. 3 and 4); however, it should be noted that in the case of breeder batch 1 (28 weeks), an average of 18.7 days of embryonic development was observed, with more than 60% of embryos with 19 days of embryonic development. That means it was at the upper limit of the recommended age to carry out the in ovo vaccination process, so it was advised to check the incubation hours of all batches in order to ensure that the process is carried out at the right time (see the Embryo age diagnosis poster on page 8).

● **Case 3. Malaysia, December 2016. Monitoring the introduction of new equipment**

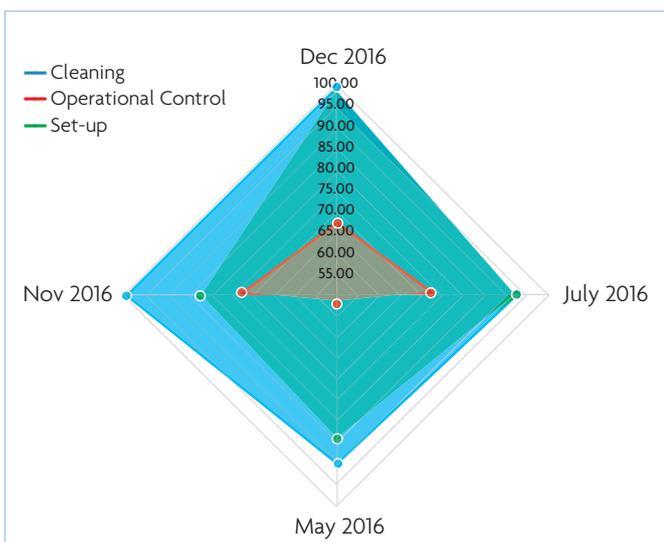
In order to monitor the introduction of new equipment in one hatchery for injection and spray, regular hatchery



Desvac Dovac® day old injector equipment.

visits were performed with one month interval (May-July and Nov-December). During the visits, a pre-defined checklist controlled the three more important parameters when handling equipment: Set-up, Operation control and Cleaning. Each positive/negative question has a specific weight giving a total score from 0% up to 100%. The results are shown in Fig. 4. In this particular example, it was noted that 'operation control' got the lowest scores, especially in the visits of May and July, due to inexperience of operators with the new type of equipment in the hatchery. A specific training plan was implemented immediately afterwards and the results improved in 'operational control' in visits of November-December.

Fig. 4. Case 3. Malaysia, December 2016. Monitoring the introduction of new equipment. Example of equipment care indicators.



The surface of the Desvac DROPLATE device for the control of coverage and homogeneity of spray vaccine administration over the crates.



Embryo age diagnosis

KNOWING EMBRYONIC DEVELOPMENT STAGE IS **CRITICAL TO DETERMINE THE CORRECT TIME TO PERFORM IN OVO INJECTION**. MOREOVER, EMBRYONIC DEVELOPMENT IS DIRECTLY ASSOCIATED TO MANY ASPECTS OF THE INCUBATION PROCESS.

MEMBRANE

HEAD POSITION

YOLK SIZE

STALK



17.5 DAYS TOO EARLY

Too early to be injected. Injection should be postponed until the embryo is properly positioned, and the yolk sac is mature enough, with no visible intestines in the stalk.



Membrane intact



Head between legs



Yolk size : 1/2 of the length



Visible intestines in the stalk



18.5 DAYS OPTIMAL TIMING

The optimal timing for in ovo injection is at 18.5 days of embryo development. However, there is a certain range of development which might be acceptable (18 - 19 days).



Membrane intact



Head under the right wing (45°)



Yolk size : 1/3 of the length



Mature yolk stalk



19.2 DAYS UPPER LIMIT

The upper limit is defined by the timing when embryo does internal pipping and pulmonary respiration starts. This limit is defined by maximum 2% of pipped eggs.



Internal pipping



Head under the right wing (>45°)



Yolk size : 1/4 of the length



Strong yolk stalk

À.À. LES POINTS SUR LES A



egg inject[®]
IN OVO SYSTEM
DESIGNED TO BE SAFE

Testimonials

NORTH AMERICA - UNITED STATES



“Effective hatchery vaccination is a process in which quality vaccines, proper preparation, and optimal administration come together to provide protection to day old chicks. The C.H.I.C.K Program is the best way to ensure that these aspects are continuously monitored and improved upon.”

James Burgess,
Ceva Vaccination Services & Equipment
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ASIA



“C.H.I.C.K Program is the code of practice not only to ensure the proper administration of our effective vaccines but also to leverage the standard of Ceva’s holistic services to become more tangible and reliable. It’s an absolute standard of service that greatly helps secure your bottom lines.”

Chalermchai Skulphuek,
Ceva Vaccination Services & Equipment
Asian Zone Manager.
chalermchai.skulphuek@ceva.com



TESTIMONIAL



Mr Kamil Borazan
Production Manager
Şenpiliç Chick



With the development of technology, the importance of hatchery vaccination has also increased. Vaccination can be controlled more effectively and technology also brings quality control programs to the forefront. But, we should have a standard so that the work can be done properly. This standard should emerge as a result of long studies. Quality control programs must be fully implemented to reach and overcome this standard.

In the same way, it is necessary to establish a number of inspection mechanisms and quality control programs to carry out the vaccination activities in the hatcheries in an effective way and carry it forward with the developing technology. It is very important that the vaccination comes from a single source and place which is particularly controllable. Proper vaccination is critical for the future of the integrators and their chick production. In this context, the technical support and services provided by vaccine suppliers such as Ceva are among the factors impacting chick quality.

The service given by Ceva under the name of C.H.I.C.K Program supports the criteria mentioned above. Audits and services done regularly show us what we are doing correctly and safely. At the same time, these programs are very important for minimizing our shortcomings and mistakes and improving our vaccination activities. Ceva also follows the developing technology and shares it with us, further strengthening the relationship.

Quality and healthy chicks are obtained when the vaccination activity in the hatchery is done correctly. Continuity is ensured by the C.H.I.C.K Program activities. Continuous control of vaccine preparation, application quality and equipment care minimizes failures in the operation.



Materials for the proper vaccine preparation of Marek's frozen vaccines.

2. Global findings on hatchery vaccination practices

Hatchery visits are made by dedicated Ceva teams worldwide to provide advice to companies on the effective administration of poultry vaccines. Thanks to a global solid system of data collection (the C.H.I.C.K Program electronic application in tablets) and a centralized data management system, Ceva is able to anonymously perform global analysis of different relevant parameters as follows:



C.H.I.C.K Program application for tablets developed by Ceva.

Global analysis of efficiency of administration of frozen Marek's cell associated type of vaccines and possible combinations

Cell associated vaccines require special attention in order to prevent the destruction of the cells, being particularly important to be careful with the temperature of the water used in the thaw bath and also with the time spent unfreezing the vaccine or with the vaccine application itself.

Table 2. Ranking of more common deficiencies recorded when preparing frozen Marek's cell associated type of vaccines (2014-2017) (Number of audits = 16,709. Number of countries = 34).

Rank	Question	Importance related to impact on vaccine viability	Answers as NO (%)
1	Presence of positive air pressure in the vaccine preparation room	Medium	16.0
2	There is a dedicated & clean room for vaccine preparation	Medium	12.6
3	Use of protective equipment: gloves, safety glasses, apron used routinely	Medium	12.1
4	Do not introduce hands into the thaw bath water	Medium	10.9
5	Mixing stations are separated for different vaccine types	Medium	10.9
6	The dewars are stored in a safe, clean & well ventilated area	Medium	8.3
7	Rubber ports of the diluent bags are swabbed with alcohol wipes	Medium	6.7
8	The time of reconstitution is written on the bag	High	5.5
9	Safety instructions are present & available for operators	Medium	4.3
10	Hands washed & thoroughly rinsed before & after vaccine preparation, drying hands & ampoules with tissue paper	Medium	3.9
11	Liquid nitrogen level is controlled, recorded & restored if needed on a regular basis in compliance with SOP	High	3.4
12	Thawing time is less than 90 seconds	High	2.8
13	Operator in charge of vaccine preparation has been trained & certified	High	1.7
14	Waiting 30 minutes when using additives before adding any vaccine	High	1.4
15	Good needle practice (changing, handling, disinfecting the needles)	Medium	1.2
16	Thaw bath temperature is between 26-28°C (78-82°F)	High	1.2
17	Vaccine is used within 1 hour	High	0.7
18	The water in the thaw bath is changed daily	High	0.4

We have analyzed the data collected when preparing a Marek's frozen type of vaccine and possible combinations from 16,709 audits in the hatcheries in 34 countries from 2014 up to present, 2017.

Using a pre-defined checklist (yes/no questions) according to our related C.H.I.C.K Program Standard Operating procedure (SOP), the more common deficiencies were recorded and ranked (Table 2). The importance of every question regarding its impact on the vaccine viability is classified as 'high' or 'medium (see educational poster on page 22).

The results show that some deficiencies that have a high impact on vaccine viability, such as 'no indication of time

of reconstitution', 'no control of level of liquid nitrogen' or on the 'thawing time', have a lower rate of occurrence during audits, which is very positive. However, points related to the storage or manipulation of vaccines in respect of aseptic techniques, such as appropriate vaccine preparation room or use of protective equipment have the higher rates (%) of 'NO' as an answer during audits.

In the same perimeter of study, the percentage of vaccination efficiency (%) was calculated by putting a score when answering the same checklist (yes/no questions) according to our related Standard Operating Procedure. Indeed, each positive/negative question has a specific weight giving a total score from 0% up to 100%.

Table 3. Ranking of more common deficiencies recorded when preparing vaccines for spray application (2014-2017). (Number of audits = 3,188. Number of countries = 36.)

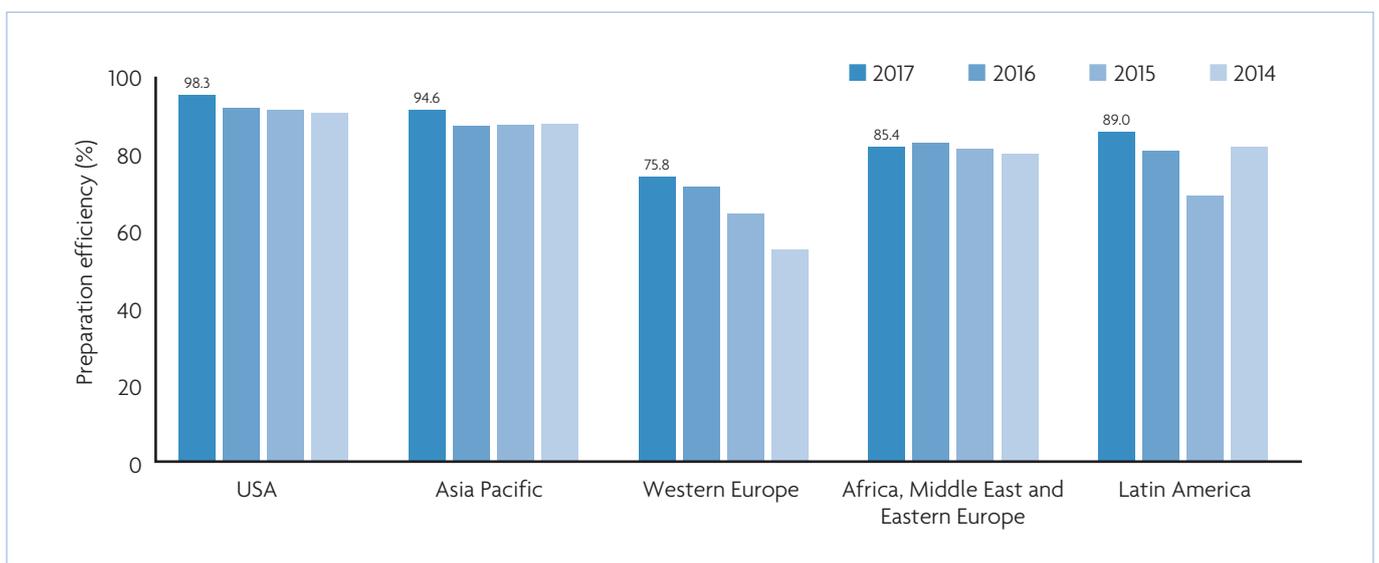
Rank	Question	Importance related to impact on vaccine viability	Answers as NO (%)
1	The vaccine is used within 1 hour	High	7.2
2	Vaccine is delivered in cool boxes and ice packs	Medium	6.9
3	There are traces of disinfectant on the room, table & tools used for vaccine preparation	High	6.8
4	There is a minimum/maximum thermometer in the fridge & the fridge is clean	Medium	6.4
5	There is a separate room to prepare the vaccine & the room is clean	High	6.0
6	The vaccine is properly reconstituted according to SOP	High	5.9
7	The thermometer is checked daily & temperatures are recorded	Medium	5.0
8	Non-metallic, clean recipients without any trace of disinfectant	Medium	4.7
9	Table and tools cleaned & disinfected before preparation	Medium	3.6
10	Hands washed & thoroughly rinsed before & after vaccine preparation, drying hands with tissue paper	High	3.5
11	Use of distilled/de-ionised water	High	3.4
12	There is a dedicated & labelled mixing jug available & in good condition	High	3.4

All countries data was organized in five geographic regions as shown in Fig. 5.

From 2014-2017 we observed that every region improved its scores. In 2017, in more ‘mature’ regions familiar with the use of Marek’s frozen type of vaccines, such as the United States where almost 100% in ovo vaccination is

used, the scores are higher (USA 98.3%) than in regions where hatchery vaccination is starting to be used more and more – Western Europe (75.8%), Africa, Middle East and Eastern Europe (85.4%). It is important to note that thanks to very intensive training and frequent audits, Asian hatcheries perform better than other regions (94.6%).

Fig. 5. Global analysis of frozen Marek’s cell associated vaccine preparation efficiency (%) 2014-2017.



Global analysis of quality of injection using different types of subcutaneous day old injectors

With respect to the quality of injections using different types of subcutaneous day old injectors, we have recorded about 24,000 audits in 24 countries during four years (2013-2017). The more common failures after injection were classified as: blood presence, no vaccine visible under the skin, killed birds, wet fluff birds, or wrong location.

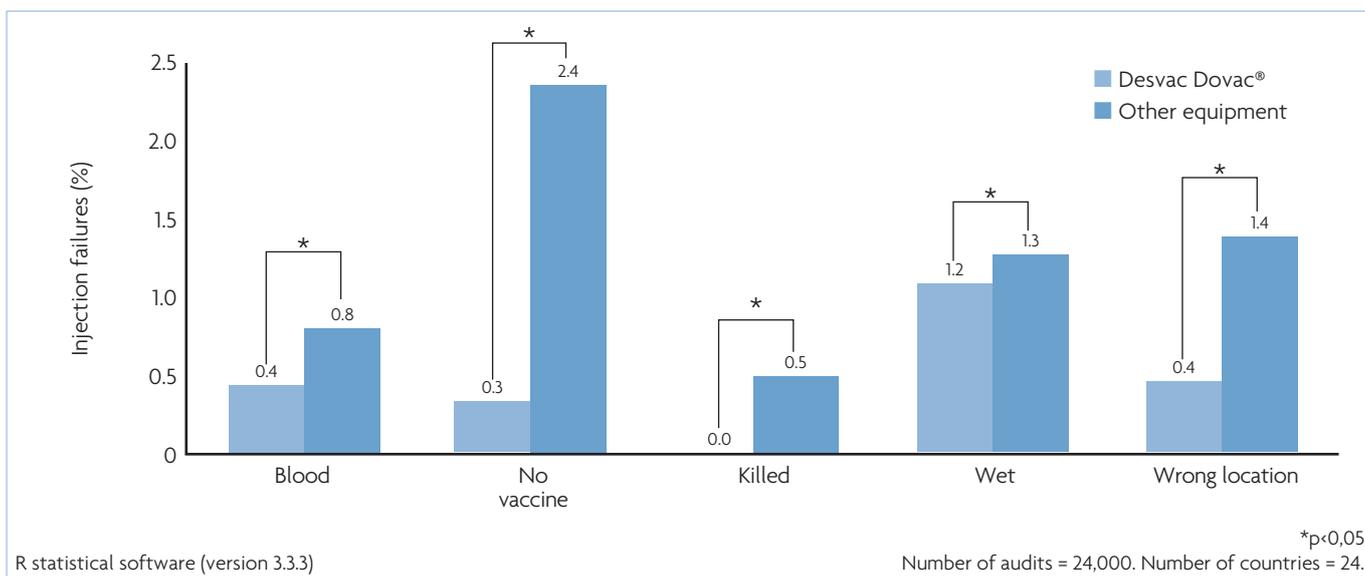
The analysis shows that the ‘wet fluff birds’ is the more common failure recorded. Additionally, we were able to compare the usage of different types of semi-automatic equipment (Desvac Dovac® and ‘other’).

As shown in Fig. 6, statistically significant differences ($p < 0.05$) were found regarding type of equipment used. The Desvac Dovac® equipment demonstrated less risk of injuries (blood, killed) and more accuracy (less ‘no vaccine’) than other equipment to perform injections. This is also thanks to the specific training given to hatchery personnel by Ceva teams.

Global analysis of quality of spray vaccine administration

The combination of the appropriate equipment and regular and professional routine quality control actions to monitor the application is a must for ensuring good spray vaccination quality and, therefore, good immunization of the chicks. Special care must be taken to the dosage, droplet size and spray pattern to ensure good quality administration in order to reach the best protection. Additionally, special attention should be given to the cleaning and disinfecting processes as the water, which is the most common basis of spray vaccination is, at the same time, the most important contamination vector. We have analyzed the data collected when preparing vaccines for spray application from about 3,188 audits in the hatcheries in about 36 countries from 2014 up to current 2017. Using a pre-defined checklist (yes/no questions) according to our related C.H.I.C.K Program Standard Operating Procedure, the more common deficiencies were recorded and ranked (Table 3). The importance of every question related to the impact on vaccine viability and is classified as High or Medium. The results show that basic points such as use of the vaccine within 1 hour (to prevent warming up of the vaccine solution) (7.2%), respect of the cold chain (6.9%), control of presence of traces of disinfectant in the tools when preparing the vaccine (6.89%), have an important rate (%) of ‘NO’ as an answer during audits.

Fig. 6. Global analysis of percentages of injection failures after subcutaneous injection (2013-2017).





Mr. Nari Kaya, Bureau Veritas Turkey auditor, and Mr. Altug Erdem, Ceva office, Istanbul, during a C.H.I.C.K. Program Quality Code of Practice audit

3. Say what you do and do what you say: The quality philosophy

In order to promote food trade and maintain consumer trust in product quality and safety, quality management is of high importance for the agri-food industry. Safety and quality standards, assurance systems and a legislative framework build around the business concept of ‘quality management’.

The development of management systems with a focus on processes is not a new concept, having begun to receive attention in the 1980s. Systems based on ‘good practices’, encompassing good agricultural, good hygienic, good manufacturing and good trade practice were developed. Since the 1990s the international standard ISO

9000 has been popular in the agri-food industry. The reason for the development of the ISO 9000 was the publication of a consistent norm, which formulates a framework for quality management. In 1993, the European Union officially recognized the HACCP methodology as a standard production method for food manufacturers to implement and maintain a production control system. Furthermore, quality systems have been developed with specific requirements for the agri-food-industry (Krieger, Gerhard Schiefer, 2016).

When it comes to poultry production, the vaccination process in hatcheries plays a crucial part to guarantee the

Fig. 7. The parts of the C.H.I.C.K Program Quality Code of Practice for the standardization of hatchery services all around the world.



vaccines are well applied to get maximum potential for protection in the field. This has a very important impact on productivity, welfare and profitability. Therefore, the integration of the vaccination process in hatcheries as part of a quality program is highly critical.

The Code of Practice and Bureau Veritas

Since its launch, the C.H.I.C.K Program Standard Operating Procedures and services have been implemented in hundreds of hatcheries around the world, guided by a dedicated team of specialized professionals. These teams are centrally supported and work in conjunction to ensure the same level of service from one country to another. But that was not enough, it was decided that our approach needed a specific quality system that incorporated international standards for our services, while providing recognition of quality to Ceva teams for the good implementation by an independent third party certification company. Bureau Veritas group fitted this role perfectly.

When respecting the basic rules for the handling, mixing and administration of vaccines by well trained personnel at hatcheries, these will be translated into more chickens well vaccinated that can get maximum potential for protection in the field. That is why the respect of well described protocols in a unique ‘Quality Code of Practice for Hatchery Vaccination’ and the control of ‘compliance’ with that is highly valuable. In this way, the C.H.I.C.K Program Quality Code of Practice is our reference guide for the standardization of hatchery services all around the world. The parts of the Program are described in Fig. 7. Indeed, all our Standard Operating Procedures (SOPs) were developed by a group of experts and well known by Ceva’s specialist teams for the audit of all stages of the vaccination process.

This guide is the result of more than two years of collaboration with a specialized certification company, Bureau Veritas Group.



Created in 1828, Bureau Veritas is an independent certification body, a global leader in laboratory testing, inspection and certification services, leading provider of ISO 9001 and ISO 14001 quality management and environmental management certifications respectively. The Bureau Veritas Group has more than 66,000 employees in around 1,400

offices and laboratories located all across the globe. Bureau Veritas helps its clients to improve their performance by offering services in order to ensure that their assets, products, infrastructure and processes meet standards and regulations in terms of quality, health and safety, environmental protection and social responsibility.

A quality stamp for a better guarantee for your customers

Compliance with the C.H.I.C.K Program Quality Code of Practice will now be monitored by Bureau Veritas Group in every Ceva affiliate candidate all around the world. After one Ceva affiliate gets its ‘Attestation of Recognition’ issued by Bureau Veritas, this quality stamp of approval will guarantee poultry producers and their customers that the quality services provided by Ceva teams are of the highest possible international standard. The promises for our customers are illustrated in the four points displayed on the next page.

QUALIFIED TEAMS
DEDICATED TO
MONITORING
VACCINATION
QUALITY

1



DELIVERY OF
CONTINUOUS
TRAINING
FOR
CUSTOMER
STAFF

2



*Mastering the good
hatchery vaccination
practices is now
quality approved.*



Ceva Animal Health makes available the C.H.I.C.K Program Quality Code of Practice to their affiliates for the control of good hatchery vaccination practices in poultry.

Official Quality Stamp as per CT814 C.H.I.C.K Program Quality Code of Practice Ceva-Bureau Veritas for use of Ceva Group and Ceva affiliates Quality Recognized only.



CT814 C.H.I.C.K Program
Quality Code of Practice

CONTROLLED BY BUREAU VERITAS GROUP.



3
REGULAR
HATCHERY
VISITS TO
CONTRIBUTE
TO CONTINUOUS
IMPROVEMENT OF
RESULTS



MANAGEMENT OF
EQUIPMENT WITH
A PREVENTIVE
MAINTENANCE
PROGRAM

4

Testimonials

AFRICA, MIDDLE EAST, EASTERN EUROPE AND TURKEY



“With ever increasing disease challenges, the pressure on hatchery managers to deliver the best quality vaccinated day old chicks keep on increasing. Quality control (QC) is a tool to achieve that. In order to implement an effective QC program, Ceva first

identified which specific standards the C.H.I.C.K Program have to meet. After this, corrective actions have been decided upon, implemented and monitored. Now, more than ever, the customers of the Ceva C.H.I.C.K Program can have more peace of mind and trust in it.”

Christo Visagie, Ceva Vaccination Services & Equipment AMEET Zone Manager.
christo.visagie@ceva.com

LATIN AMERICA



“The C.H.I.C.K Program is the key for continuous improvement of the day to day running of the hatchery, ensuring the main objective: the proper vaccination of day old chicks. Auditing and training of hatchery personnel have proven the success of this objective. Personnel become more professional day by

day, providing the company with tremendous value in the product delivered. Nowadays, to succeed is not only a matter of having the best technology, it is having both professionalism and technology.”

Eduardo Macchi, Ceva Vaccination Services & Equipment LATAM Zone Manager.
eduardo.macchi@ceva.com

EUROPE



“Quality, according to the Oxford English Dictionary, is the ‘degree of excellence’ and a ‘distinctive attribute or characteristic possessed by someone or something’. Poultry producers are constantly looking for ways to excel and to distinguish themselves from their competitors,

by improving chick quality and robustness. To guarantee the high quality level of the hatchery vaccination procedures, Ceva has developed the unprecedented C.H.I.C.K Program. In this way Ceva helps its customers to build and to maintain excellence.”

Wessel Swart, Ceva Vaccination, Services & Equipment Europe Zone Manager.
wessel.swart@ceva.com



Mr. Tito Toledo and Mr. Marcelo Moreno, Ceva Mexico Vaccination Services.

4. Global implementation: C.H.I.C.K is a worldwide quality program



NORTH AMERICA



Number of hatcheries visited* = 93
Number of audits recorded = 227

LATIN AMERICA



Number of hatcheries visited* = 293
Number of audits recorded = 2,525

MEXICO



Ceva Animal Health Index available the C.H.I.C.K Program Quality Code of Practice to their clients for the control of good hatchery vaccination practices in quality.



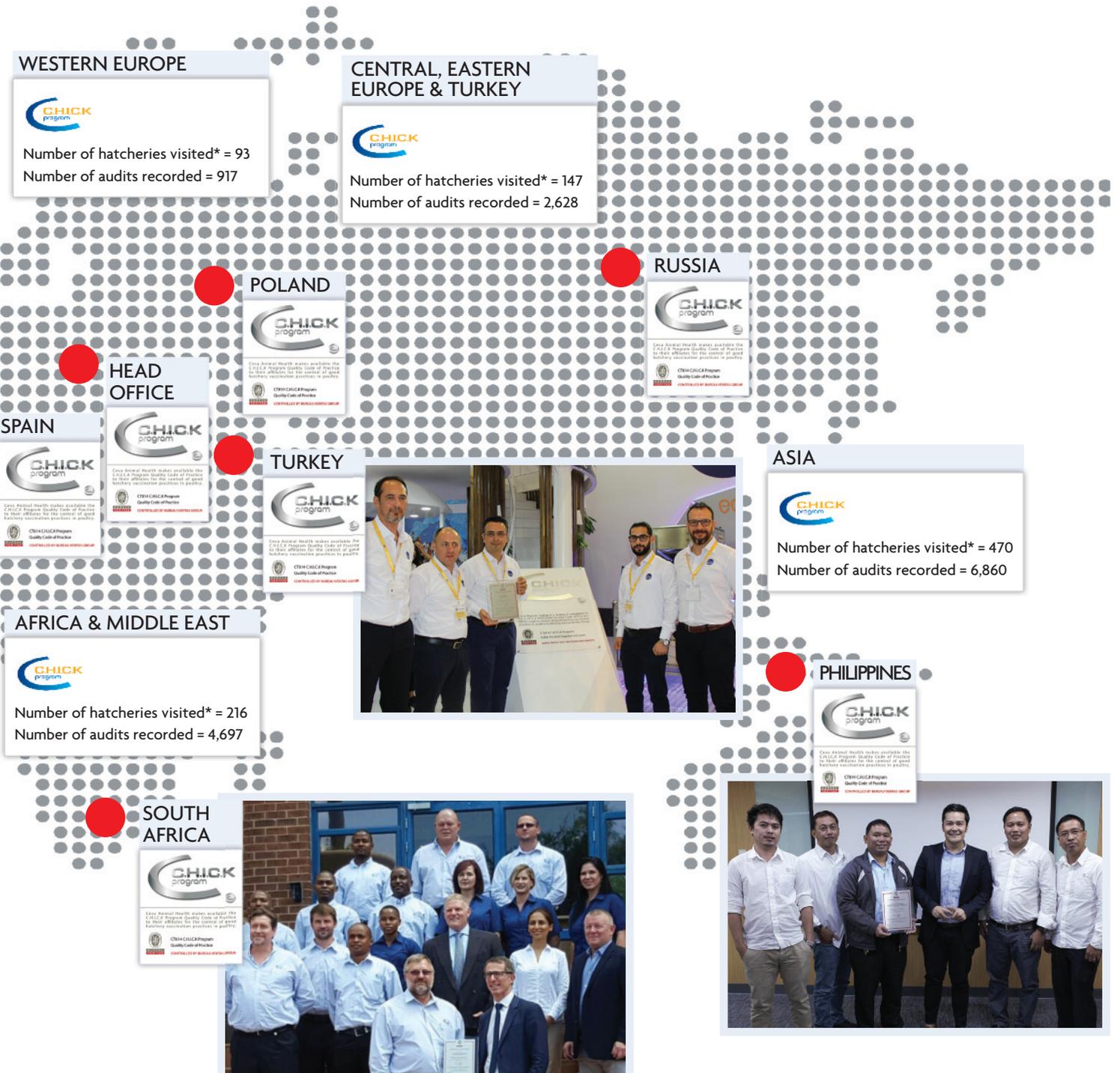
Ceva Head Office, France



Global map showing the number of hatcheries visited and the number of C.H.I.C.K Program audits recorded per region. From 2014 up to current 2017.

*visited in the context of C.H.I.C.K Program audits.

● indicates countries 'Quality recognized' by Bureau Veritas





Mr. TingWu Yin from QHD CP Hatchery and Mr. Kevin Liu, Ceva Vaccination Services, China; during a C.H.I.C.K Program visit.

The C.H.I.C.K Program is at the origin of the first independently audited quality recognition

In November 2016, Ceva Head office achieved a notable first for the animal health industry as the successful implementation of one of its service programs, the C.H.I.C.K Program, received internationally recognized quality approval from the international testing and certification company, Bureau Veritas Group.

Now, less than one year later, 8 countries in 4 different continents have passed quality control audits in their offices and in the customer's hatcheries. 7 of them have got 'Quality Approval' (see map): South Africa, Spain, Turkey, The Philippines, Russia, Mexico and Poland. 3 more countries are under assessment at the time of writing (United Kingdom, Vietnam and Argentina).

To become quality approved, Ceva Santé Animale Headquarters underwent an evaluation process to show

compliance with the quality standard which is today the C.H.I.C.K Program Quality Code of Practice. More than ever the C.H.I.C.K Program stands out from the emerging competition service programs thanks to this unique recognition. The first country to obtain Quality Recognition was South Africa in 2016. In South Africa Newcastle disease and Gumboro disease are common and their high frequency of occurrence have a negative financial impact on poultry farmers. Providing a testimonial during an international conference, Mr Jaco Viljoen, CEO of Opti chicks, mentioned that he and his management team have found day-old vaccination with Vectormune®ND and Transmune® to be highly effective in combating Newcastle and Gumboro diseases, but they also appreciated that the proper administration of these vaccines in the hatchery was a key prerequisite for the success of their clients.

So, when they heard about the C.H.I.C.K program they had to evaluate it. They found that keeping control of the correct storage of vaccines helped to reduce stock losses and made traceability easier. In addition, the good handling of frozen vaccines ensured staff safety,



South Africa, Spain, Turkey, The Philippines, Mexico, Russia and Poland are today 'Quality Approved' by Bureau Veritas Group.

maintained vaccine efficacy and minimized vaccine contamination. The importance of correct vaccine preparation was also highlighted as this ensures that the chicks are vaccinated with a vaccine of the highest viability. Finally, regular training has added to staff skill sets and improved the overall efficiency of the hatchery. The end result is happy customers, a happy workforce and less stress for managers and supervisors.

In 2017, Spain, Turkey, the Philippines, Mexico, Russia and

Poland joined the program after successfully passing audits in offices and customer hatcheries. The United Kingdom, Vietnam and Argentina may join as their audit results are currently being evaluated by the certification company. Before the end of the year, audits are planned in Thailand, Brazil, Indonesia and Malaysia.

At the same time, more countries are being prepared to achieve quality recognition next year, including France, the United States, China and many more.



Sharing of data with the C.H.I.C.K Program application.



**Mrs Magdalena
Szymańska-Krzywda,
Chief Veterinarian,
DanHatch Poland**



TESTIMONIAL

DanHatch Poland S.A. is a company that always wants to give their customers the best quality product. When we heard about the C.H.I.C.K Program, we had no doubt that we wanted to implement it in our hatchery. Now, after 5 years, we are sure that it was a step in the right direction.

The C.H.I.C.K Program implemented systematized the procedures of preparing vaccines and regular quality injection controls, which we expanded by internal daily controls.

Together with regular equipment service, it helped us reach an effectiveness of 99.3% (average for the last 18 months).

As part of the C.H.I.C.K Program, the equipment for spray immunization has been changed for Desvac IN LINE SPRAY, which allowed us to reach a repeatable high quality of vaccination.

Due to the C.H.I.C.K Program implementation, customers of DanHatch Poland can be certain that their chicks are well vaccinated.

PREPARATION PROCEDURES FOR FROZEN VACCINES



→ Clean your work area

Clean and disinfect the preparation area. Spray alcohol on the preparation table and let it dry.



→ Wash your hands

Always wash your hands with warm water and soap. It is recommended to use disposable gloves.



→ Add Blue Dye

Add blue dye to the diluent bag and agitate gently. If other additives are being used, add them at least 30 minutes prior to adding the vaccine.



→ Wear Protective Equipment

Always use safety equipment when removing the ampoules from the Liquid Nitrogen container. Do not thaw more than 4 ampoules at one time.



→ Thaw for 60-90 seconds at 26-28°C

Thaw the ampoules in clean distilled water at 26-28°C (79-82°F), for 60-90 seconds. Water must be changed and thawing container cleaned every day.



→ Dry the ampoules

Dry thoroughly the ampoules with good quality paper. We recommend to have 5ml of diluent first in the syringe when removing the vaccine.



→ Collect the vaccine

Once thawed, immediately collect the vaccine into a 20ml syringe. Use a 18G needle.



→ Inject the vaccine

Swab the rubber port of the bag with an alcohol pad. Wait a few seconds. Gently inject the vaccine into the diluent bag and agitate to mix the vaccine.



→ Write time of preparation

Write the time of preparation on the bag. The vaccine must be used within 1 hour.

→ IMPORTANT INFORMATION



Discard any defective ampoules



Use disposable single use syringes and needles



Vaccine should be used within 1 hour



Keep your area clean



Multiple product injection
1- Additives and blue dye (wait 30 minutes) 2- Freeze dried vaccines 3- Frozen vaccines

Always contact your Ceva Vaccination Services & Equipment Specialist for assistance
Please refer to your country's legislation before using additives and antibiotics
Discard empty containers safely in accordance with local legislation



www.ceva.com
equipment.ceva.com



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Ceva Animal Health makes available the C.H.I.C.K Program Quality Code of Practice to their affiliates for the control of good hatchery vaccination practices in poultry.



CT814 C.H.I.C.K Program
Quality Code of Practice

CONTROLLED BY BUREAU VERITAS GROUP.

Mastering of good hatchery vaccination practices is now quality approved

A step forward in our objective to ensure that all your birds are well vaccinated:

For the first time, a services program for hatcheries has received internationally recognized, quality approval ensuring that the quality services we provide are of the highest possible international standard.

