

The advantages of in ovo vaccination at the hatchery

by Ephrem Adjanooun, Egg Chick Automated Technologies (ECAT), ZI du Vern PB 50115, 29400 Landivisiau Cedex, France.

Vaccination in the hatchery is the best way to provide the earliest possible protection to poultry. Among the various methods of vaccination, in-ovo vaccination is quickly becoming the preferred method since it provides two advantages: 1 Vaccination occurs right in the hatchery in a very protective and controlled environment. 2 At the same time it provides the earliest possible protection of the chick by vaccination of the egg 2-3 days prior to their hatch.

Optimum conditions

In ovo vaccination may require a few condition for optimum operation. The vaccination should be performed in a clean room fed by a clean and fresh air source. Given the speed of injection achieved by the in ovo vaccinator equipment, operators need to be

trained appropriately to ensure adequate operation of the machine.

The equipment must provide automatic disinfection of the needle between each egg injected to minimise the risk of contamination from one egg to another. The photograph below shows the needle of ECAT's Eginject machine being disinfected after injection. The machine must also be disinfected and cleaned after each utilisation.

It is highly recommended that producers carrying out in ovo vaccination candle and remove clear eggs and early dead eggs prior to injection to minimise bacteria contamination and risk. For small operators a professionally built candling table, such as those

offered by ECAT may be sufficient. Large operators may use an automated candling machine such as the accurate laser candling machine that candles and removes the unwanted eggs right before injection takes place.

In the same way, after the in ovo injection has taken place, a professionally built automated or semi automated transfer machine may be useful to gently move the injected eggs from setter trays to hatcher baskets.

An in ovo machine can process several tens of thousands eggs per hour. It is therefore important to remember that inappropriate vaccination may lead to losses in hatchability.

The choice of professional equipment such as ECAT's Eginject is, therefore, crucial. Furthermore, it is recommended that producers have a service contract with the equipment manufacturer to ensure proper maintenance and training of operators.

The vaccine manufacturer's rules on how to mix, preserve and use their vaccine must be strictly respected.

Significant advantages

In ovo vaccination performed by automated equipment offers significant benefits both in term of chick quality and health as well as financial and economical advantages.

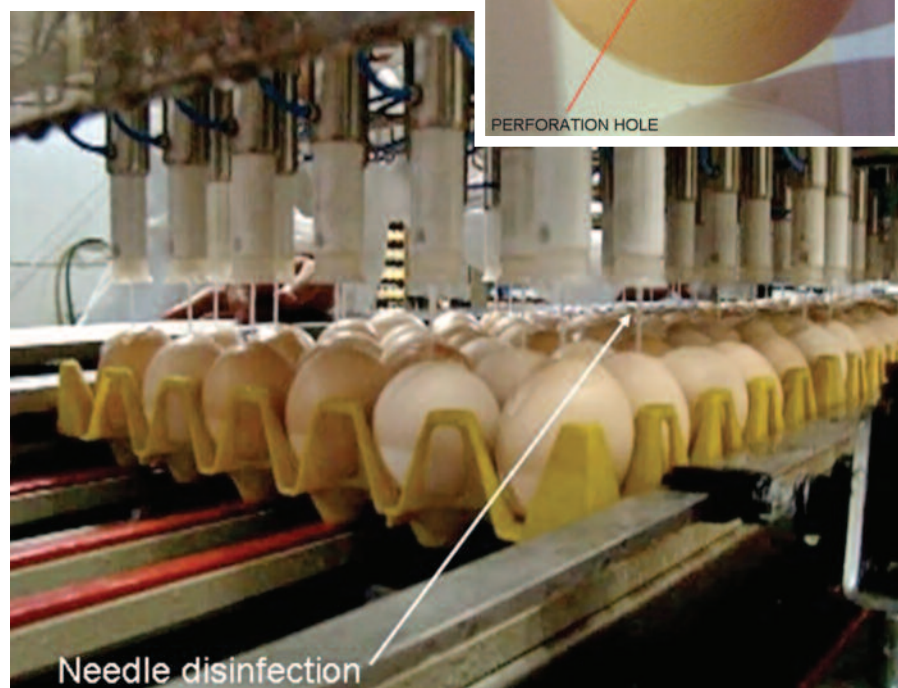
A large choice and a growing range of vaccines formatted for in ovo delivery is available. Latest technologies in vaccines such as recombinant vaccines or complex vaccines, allow many suppliers to produce adapted vaccines to be used in ovo, from the traditional Marek's vaccine through to IBD/Gumboro vaccine.

Many more options are being made available or are in the process of being launched by the veterinary industry to cover and replace most known and common vaccines administered today.

Clearly these newly engineered vaccine technologies are generating good immune responses and avoid the burden of maternal antibodies potentially destroying vaccines administered after chicks have hatched.

Marek's disease is the major hatchery vaccination for layer chicks in the world and for

Continued on page 31



Continued from page 29

the majority of broiler chicks in many countries. It is well known that the earlier the vaccine is given before the chick is exposed, the better the protection. In ovo vaccination provides the earliest vaccination 2-3 days prior to hatch and clearly allows an earlier colonisation and protection of the target organs by the live vaccine.

The day old chick is therefore better protected once confronted with the actual field virus.

Direct savings in hatchery labour costs can also be made. In ovo equipment can vaccinate as few as 5,000 eggs/hour with smaller semi-automated units to as many as 100,000 eggs/hour depending of the set up of the equipment.

The vaccination requires only a few people, where it would have required 5-15 times more for manual injection.

Most industrial operations operate their in ovo equipment at speeds of 30,000-60,000 eggs per hour limited by the actual intake or output of the egg trays.

The equipment delivers vaccines with accuracy and reliability that could not be achieved by human operator subjected to fatigue.

Therefore, in ovo injection contributes to a better quality of immunisation as virtually all eggs are injected with the right dose which guarantees that all chicks hatched have been injected properly. In ovo vaccination also reduces labour health issues related to manual subcutaneous vaccination.

Shorter processing time

By vaccinating in ovo the operator is able to reduce the hatch processing by several hours and simply eliminates the stress that would be imposed onto the day old chicks if they were vaccinated by needle injection at day old.

This results in a much stronger and better chick quality delivered to the farm and better growth and immunity. Also, in ovo vaccination, much like spray vaccination at day old, does not require chick handling and does not stress the chick.

In ovo vaccination generates additional savings in reducing the number of vaccinations that may be required at the farm as

well as the hygiene risk represented by the traditional vaccinating crews having to move from place to place.

Furthermore, in ovo vaccination takes place at the hatchery which is by far the best protected and most comfortable place to do such a job.

New in ovo generation of IBD/Gumboro vaccines proposed by CEVA, Merial and Pfizer are the best illustration today.

Modern equipment

The Eginject machine is a new generation in ovo vaccinator operated by automated intelligence. The design carries some unique features and provides significant advantages over traditional in ovo machines.

Users can now benefit from quality and large cost advantages generally not available with traditional equipment.

The Eginject therefore

makes in ovo

vaccination

more



ECAT's Eginject in-ovo injection line.

affordable to small producers or interesting for small injection batches or, in some cases, for layer hatcheries

The delivery system of the Eginject allows users to decide the dose to be injected, whereas all current in ovo equipment only allows a single dose of 0.05ml to be injected.

The multiple dose feature will allow adjustment for the injected volume so that various type of vaccine or products can be delivered safely with a higher accuracy than traditional equipment for each injected dose.

Modern vaccines are more and more expensive and up to 10% may be wasted with traditional equipment. The Eginject's four vaccine saving patterns allow the equipment to be economical and suitable for

small hatcheries and a small batch of flocks:

1 The ability not to inject the clear or dead eggs positions removed by the candling.

1 A significant reduction in the length of the vaccine pipes minimise vaccine that may potentially be lost in the circuit compared to traditional equipment.

1 The ability of the equipment to utilise all vaccine left inside the equipment.

1 The Eginject technology simply prevents the loss of vaccine at priming of the equipment – a saving in vaccine that may represent thousand of dollars everyday the equipment is used.

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This system clearly enhances hatchability and prevents losses experienced by more traditional equipment.

The Eginject, because of its single needle technology, significantly reduces the diameter of the vaccination hole to 0.7mm or less and allows the egg membrane to obstruct the injection hole from the inside, hence greatly reducing the risk of bacteria and mould contamination or the need for extremely specialised environments that are hard to find in small hatcheries.

Any of the above features will generate enough saving to pay for a modern in ovo Eginject machine, making it affordable to small and large hatcheries in its semi or fully automated form. ■

The in-ovo injection line in Japan.

