Vaccines and Vaccination Programs for Broiler Breeders

For the modern poultry industry vaccination plays a key role in the prevention of infectious diseases. Vaccination of broiler breeders is especially important as this protects not only vaccinated birds (the breeders) but also their progeny (broilers).

There are two main types of vaccines available for the broiler breeders (BB) – live and killed.

**Live vaccines** contain live microorganisms, viruses (like Newcastle Disease virus), bacteria (like Salmonella typhimurium) or parasites (like coccidia – E maxima etc.). Fairly recently, new types of live vaccine were introduced – recombinant vaccines. Recombinant vaccines currently available on the market contain a live virus as a carrier. In the genes of this virus a portion of the genes of another virus have been inserted (for example, Herpes Virus of Turkeys, a virus that is commonly used to protect chickens against Marek’s Disease carries a portion of the genes of Infectious Bursal Disease virus). Vaccination with this type of vaccine protects against both diseases. The biggest advantage of live vaccines is that they can be applied by mass application techniques such as spray or in the drinking water. Unfortunately, live vaccines can be easily damaged in the process of transportation, storage or application (by high temperatures, sunlight or disinfectants).

**Killed vaccines** contain inactivated (dead) viruses or bacteria in (most often) an oil emulsion. Killed vaccines must be injected to each bird in the flock but provide long lasting immunity which is important for long living birds like broiler breeders. This is especially true after “priming” with live vaccines (if live vaccine of the same type is given before the killed). Most of the killed vaccines are commercial products manufactured and licensed for a certain country or region. A unique type of killed vaccine is the “autogenous vaccine”. When a pathogen (virus or bacteria) is affecting one or a group of flocks and no commercial product is available, autogenous vaccine is made to prevent those diseases. They are made in smaller batches under supervision of a veterinarian.

**Proper Storage and Application – Keys for Successful Vaccination**

As mentioned earlier, damaging vaccines during transportation, storage and/or application will lead to vaccination failure. Both your broiler breeders and progeny will not be protected causing a loss in production or mortality.

Live and killed vaccines should be kept at 4-8°C and protected from heat and sunlight. Monitor your fridge temperature at all the times. Investing in a good fridge and having a simple Min-Max thermometer that will be checked daily is a minimum standard that every broiler breeder producer should do. Installation of an alarm that will notify you if temperature rises or drops (freezing is especially damaging for the killed vaccines) will prevent costly replacement of the vaccines. Exposing vaccines to sunlight, heat or disinfectants before the application will severely damage the live organism. That being said, killed vaccines need to be warmed (left at room temperature 12 hours before vaccination or warmed to 37°C in a water bath for 5 hours).

Explaining all details of proper administration of the vaccines goes beyond the scope of this document; we will list only a few of the most common errors. During drinking water administration of the vaccines they are usually damaged by the residual chlorine in the water lines – stop chlorination 24 hours before
vaccination, flush the lines and use skimmed milk or vaccination tablets. Using the same spray pump for applying disinfectants and vaccine is the “most efficient” way to kill your vaccine.

Ask your veterinarian and hatchery for assistance – regular vaccination audits and serology monitoring (blood tests to check for vaccine titers) need to be part of your routine.

**Vaccination Programs**

There is no universal vaccination program for all broiler breeders, please always consult your hatchery and veterinarian for the latest plan for your flock. Whatever the program, **every** vaccine is important in providing protection for **both** broiler breeders and progeny. Here we will list most commonly used vaccines and their importance.

Live Newcastle (ND) and Infectious Bronchitis (IB) vaccines

- Protect the birds during rearing period from those respiratory diseases, prime the birds so they can react better to the killed vaccines and be protected during production (both disease cause drop in production and poor egg shell quality).

Live Infectious Bursal Disease vaccines

- Protects broiler breeder chicks and pullets during rearing period, prime for the killed vaccine. This disease causes immunosuppression and mortality.

Live Avian Encephalomyelitis (AE) vaccine (sometimes in combination with Infectious Laryngotracheitis vaccine (ILT))

- Protects broiler breeders during production period from a drop in egg production and protects the progeny from this devastating viral disease causing high mortality in broilers. The ILT component protects against this respiratory disease.

Live REO

- Protects broiler breeders from the viral infection of tendons

Killed REO-IBD combination

- Long lasting protection from viral arthritis in broiler breeders, IBD component provides good protection for the progeny

Killed NDV-IBV-REO-IBD

- The NDV-IBV component provides long lasting protection for broiler breeders during production period

Live and killed Salmonella vaccines

- Provide protection during rearing and production period, minimize vertical transmission to progeny
Summary
Proper handling, storage and administration of vaccines is very important. Eliciting good immunity in your broiler breeder pays off as your birds are protected against various diseases and gives a good start to protection in the broilers.

This article was written by the veterinarians of Poultry Health Services Ltd. Poultry Health Services is a private veterinary practice providing diagnostics for Alberta poultry producers as members of the Poultry Health Centre of Excellence (PHCE). Bird submissions can be submitted to the PHCE via Government offices in Edmonton, Airdrie and Lethbridge. Please call 403-948-8577 if you have a mortality problem or want help making a submission.