

# Ring of Protection or Ring of Confidence...



*the name is ...* **INDOVAX**



## Drinking Water Vaccination - Are You Sure Your Birds Are Properly Vaccinated?

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How well do you know your birds are vaccinated, especially if you use the drinking water method? Did every bird drink the vaccine solution? Did each one get the proper dose?

To ensure proper vaccination, make sure that each step of the process is followed and followed correctly. The reason you are vaccinating your birds is to give them a vaccine that will induce an immune response, which will ultimately protect the birds against disease.

Stimulating the immune response leads to protection against disease. Providing protection is the best way to control disease and vaccination is one form of prevention. Without prevention, disease control would only mean treating the disease symptoms. This is very difficult and costly. Prevention is the most cost-effective way to control disease. The benefits of vaccination can only be realized if the vaccination itself is performed properly. To establish effective results of drinking water vaccination, one should follow the steps outlined and understand WHY each step is recommended.

### ADMINISTRATING VACCINES

Administrating vaccines through drinking water is commonly used method of vaccinating poultry flocks around the world. When properly performed, this can be an effective and economical method of protecting poultry flocks. For diseases such as Infectious Bursal Disease and Reovirus, oral entry is the natural route into the body, so oral vaccination may be the preferred route of vaccination. These disease organisms also grow

and reproduce in the intestinal tract. Vaccines against Newcastle and Infectious Bronchitis are also commonly administered in water vaccination programs.

Many variables can affect the success and effectiveness of water vaccination programs. Some factors are directly influenced by the birds themselves, some are influenced by the vaccine and some influenced by equipment and techniques used to supply the vaccine to the birds.

Bird factors include immune status, water consumption, antibody levels in the egg, social "pecking" order, and watering space. Vaccine factors include bacterial / viral concentration and stability in water and vaccination timing. Technique factors include water quality, water withdrawal time, type of waterers, method of delivery and time from vaccine mixing to administration and consumption, and ambient temperature.

### STEPS BEFORE VACCINATION

**Calculate water consumption** – water consumption can vary from region to region and farm to farm. It is dependent on the environmental temperature, humidity, water delivery method, breed and age of the flock. The best way to know how much water to use is to measure the water consumed on your farm or in the house you are vaccinating the day before actual vaccination. It would be best to do this during the same time of day you plan to vaccinate. Typically, birds will consume about 1/4 to 1/3 of their daily water

intake in the first 2-3 hours of their morning activity. To work out the amount of water to be offered as a vaccine solution, multiply the daily water intake of the entire flock in the shed by 30% (0.30)

Time of the day - Birds should be vaccinated soon after sunrise because early sunlight stimulates bird activity. On cloudy, overcast days, it may be necessary to use additional artificial light to stimulate flock activity.

Under ideal conditions the vaccine must be consumed within 2 hours. With less vaccination time, birds lower on the social order may not have an opportunity to drink adequate water to receive a full dose of vaccine. Conversely, with greater vaccination time, the viability of the bacteria or virus in the vaccine may be depressed, resulting in uneven vaccination of the flock.

**Clean the equipment** – Rinse equipment used for vaccination with clean water. Do not use detergents or disinfectants. Rinse the water lines, tanks, and buckets with clean water to get rid the equipment of any harmful residues that may inactivate the vaccine virus.

**Quality of the water – What is the pH of your water?** – The water used for vaccination should have a proper pH (6.5 – 7.5) and low mineral content. Too acidic or too alkaline water will inactivate the live vaccine virus. Where the quality of water is doubtful, it is advisable to have the water sample tested and to seek expert opinion.

There are several quality factors that affect the stability and viability of vaccines, which in turn affect the degree of immunization if flock. The factor with the greatest impact is the amount of chlorine in water.

Water from public sources may contain Chlorine

(used as disinfectant to control water-born bacteria) and should be avoided. If the water is from a source which contains Chlorine, treat it with powdered skimmed milk (2.5 – 3g / litre). Chlorine, if left in the water, will inactivate the virus making it ineffective. Skimmed milk powder, on the other hand, will neutralize chlorine. Milk powder must be mixed at least 20 minutes before adding the vaccine to give time for neutralization of any elements (such as chlorine and metallic ions) which can damage the water.

**Prepare the vaccine solution properly** – while preparing the vaccine solution, we have to ensure that the vaccine does not come in contact with disinfectants, metallic ions, chlorinated water or water sanitizing materials commonly used on farms.

Wash your hands with plain water (without disinfectants). The vaccine vial should be reconstituted using a sterile syringe and needle. Add the prepared vaccine water via syringe to the vial and mix until the vaccine is dissolved. Then open the vial top and add to the larger bucket of water in which vaccine has to be reconstituted. Make sure the water is cool or cold when the vaccine is added.

**Important:** Plastic containers and drinkers (non metallic) should be used as certain metallic ions can inactivate the virus in the vaccine.

## VACCINATION

### Vaccinate in a timely fashion

The vaccine solution should be administered as soon as it is prepared. Open the water distribution system. In case of nipples, check arrival of the vaccine containing water at the end of the lines before it flows down the nipples lines. For bell

drinkers the vaccine solution is often poured with a water can in several passages.

Live vaccines after their dilution have a limited life span that must be taken into account while administering the vaccine. It is necessary to ensure that all vaccine is quickly consumed. Birds must be exposed to the vaccine for 1 to 2 hours. A longer duration may be advised for some vaccines. In the case of Newcastle and Bronchitis vaccines, the titres sharply decrease after 2 hours. In hot climate, vaccination should be done early in the morning. The vaccination process is not finished when the tank is empty: vaccine solution remains in the water distribution pipes and has to be flushed through with water of good quality.

### Encourage the birds to drink

There are various means by which the birds can be encouraged to drink such as controlled lighting, controlled feeding or water deprivation (withdrawal of water before vaccination). To increase probability of uniform and successful immunization the birds must be thirsty and ready to consume water when the vaccine is administered in the water.

Withholding water for 1-2 hours prior to vaccine administration is a common practice. This water deprivation must be adjusted to environmental conditions, of which air temperature at the bird level is the most important factor.

Not inducing adequate thirst may result in lowered vaccine intake in the birds which results in less than satisfactory response. This also means that the vaccine remains in the watering system for longer periods, thus affecting its potency.

Whereas, water deprivation is useful, it must be done with caution. Care must be taken not to create

excessive thirst in the birds, which may result in dominate birds consuming more water (and vaccine) while other birds (lower in the social pecking order) receive little or no vaccine. This uneven vaccination results in inadequate protection and varying degrees of vaccination reactions in the flock. For this reason, competition for drinking space must not be a limitation during vaccination. Enough waterers need to be provided in sheds where the facility for channel water system does not exist.

Excessive deprivation of water can stress the birds to a level, which can predispose disease and adversely influence both vaccine efficacy and feed efficiency.

Vaccination by drinking water is one of the most efficacious ways to vaccinate birds against enteric diseases like Gumboro disease and Avian Encephalomyelitis. The efficacy, however, is dependent on the proper vaccination administration. It is essential for each bird to consume a full dose of vaccine to provide optimal immune response. This is especially important when the farm has a recent history of disease outbreaks and the birds are challenged with specific diseases. For successful vaccination, we must ensure that each bird receives a vaccine dose and that the dose it receives contains a living vaccine virus.

To be effective, all vaccine programs including drinking water vaccination must be carried out in conjunction with a high-standard bio-security program. There is a very simple answer to what needs to be included under the bio-security program-everythin!