

# Benefits of vaccination strategies for broilers and table egg layers

Coccidiosis vaccination has been the primary method for coccidiosis control in breeding and laying flocks for many years. The goal is to develop solid immunity against all prevalent *Eimeria* species by introducing the *Eimeria* species at an early age.

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In broilers, the primary method for prevention of coccidiosis has historically been the use of anticoccidials in the feed. In recent years an increase has been seen in the use of coccidiosis vaccines, an evolution mainly driven by the popularity of certain retail labels like ABF & NAE policies.

Another reason for using coccidiosis vaccines in broilers is to restore the sensitivity profile of the field strain to the commonly used anticoccidials. Scientific research and field experience has shown the presence of strains with reduced sensitivity towards several anticoccidials.

The introduction of sensitive vaccine strains to replace the resistant field strains will have a very positive effect on the efficacy of the different anticoccidials when used again after the vaccination protocol.

## Benefits of coccidiosis vaccination for table egg layers

Table egg layers are placed in different houses during the rearing and production period, this can have an important impact on coccidiosis prevention as the *Eimeria* strains present in rearing and production are not necessarily the same. It is well described that there is no cross immunity between different *Eimeria* species.

It is therefore of crucial importance that layers have developed solid immunity to all relevant *Eimeria* species in the rearing period before they enter the production house. If this is not the case, it can mean that the birds come in to contact with a certain species for the first time (for example *E. necatrix*) during the production period.



Seeing that the switch to the production environment is already a very stressful and sensitive period, an additional coccidiosis challenge would have a devastating impact on egg production. In many cases birds would need to get a coccidiosis treatment with the necessary complications for egg production.

Using a coccidiosis vaccine in the rearing period is the only way to ensure that all the birds have contact with all relevant species. There are many different vaccines on the market and different vaccines can have a different composition of *Eimeria* species included.

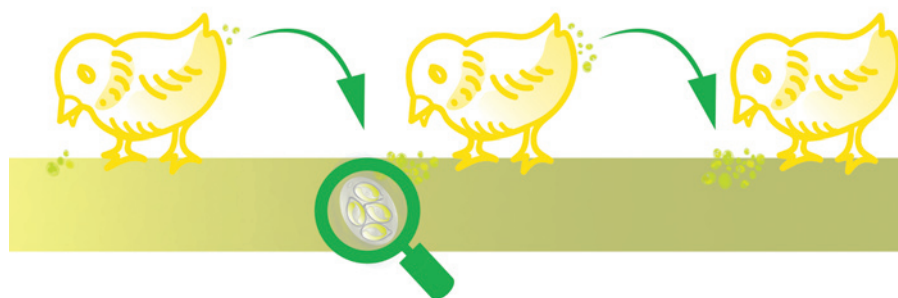
When selecting a vaccine, it is advisable to check which species are prevalent in the

different farms that will be vaccinated. In total, seven *Eimeria* species (*E. acervulina*, *E. maxima*, *E. tenella*, *E. necatrix*, *E. brunetti*, *E. mitis* and *E. praecox*) are found worldwide in chickens but, in reality, not all species are present on every farm and some species are more pathogenic than others.

Circumstances in the rearing house can be very different between farms and countries. When applying coccidiosis vaccines it is important to realise that birds need to have at least three consecutive contacts with the parasite before they will develop solid immunity.

Therefore, it is of importance that the birds have the possibility to get into contact

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with faeces as this is how the second and third contacts are accomplished. In case of floor housing, this will be less of a problem compared to birds kept in enriched housing systems or cages.

Under these circumstances, the farmer will need to take additional measures, for example placing chick paper on the grills to make sure birds will have a second and third contact with the vaccine strains – taking into account that the chick paper needs to stay at least three weeks in the cages to ensure good cycling of the vaccine.

In some countries, layers are still housed in cages during production and, as a consequence, these birds will have much less contact with faeces and thus a lower risk for coccidiosis problems.

Under these circumstances using anticoccidials in the feed during the rearing stage can be a valid option to prevent coccidiosis problems in this period. The use of anticoccidials does not prevent the development of immunity.

The best way to control coccidiosis in table egg layers will depend on the housing system and *Eimeria* strains present in the farm. The goal should always be to let the birds develop immunity against the strains present in the house and prevent any intestinal disorders in these layers when they are in the production period.

### Benefits of coccidiosis vaccination for broilers

#### ● In case of label requirements

In certain areas, there is an increased demand for broilers grown without the use of ionophores. In this case, using a coccidiosis vaccine is a very good option. Vaccination can be combined with a chemical anticoccidial (for example amprolium, Amprol) in order to control the peak of coccidiosis pressure once the immunity stimulation is finished.

This is one of the reasons why a coccidiosis vaccine needs to cycle as fast as possible. Clear differences exist between different coccidiosis vaccines and this will have an impact on the success of the vaccination.

A study conducted by Prof Robert Teeter (Caloric cost of immunity development to coccidiosis. WPC 2008 proceedings) has shown that a late coccidiosis challenge will have a much bigger impact on the performance of the birds compared to an early coccidiosis challenge.

By consequence, a vaccine demonstrating early cycling will give a better performance compared to a vaccine with late cycling. This early cycling is one of the key benefits of both our European and US/international coccidiosis vaccine (HuveGuard and Advent).

#### ● In case of restoration of sensitivity

When anticoccidials are over-used, the sensitivity of the field strains for these



products will be reduced, which will be reflected in a decrease of efficacy. A coccidiosis vaccine can be used to restore the sensitivity of the *Eimeria* strains to the used anticoccidials.

A part of the registration process of coccidiosis vaccines is to prove that the strains in the coccidiosis vaccine are sensitive to anticoccidials. These sensitive strains will be introduced in the flock and will replace and interact with the resistant field strains.

This can be achieved because the vaccine strains are introduced at a very early age in a high dose which gives them a competitive advantage to the field strains present.

However, in order to acquire complete replacement, vaccination needs to be maintained in at least two consecutive flocks, or even three or more flocks.



Huvepharma has conducted a trial to evaluate the restoration of sensitivity after vaccination. *Eimeria* strains were collected from the vaccinated farms before and after vaccination (with Advent) for three consecutive flocks.

Before vaccination there was reduced sensitivity of the field strains for many different anticoccidials (both chemicals and ionophores). After vaccination the sensitivity profile was changed and efficacy of all anticoccidials was improved making them potent anticoccidials again.

The average anticoccidial improvement (for example, the benefit seen after infection with *Eimeria* strains by using a specific anticoccidial in comparison to an infected, untreated control group) before vaccination was 5%, whereas after vaccination it improved to 72%.

Similar benefits are reported in the field. Typically the best performance is noticed in the flocks that are back on anticoccidials after the use of coccidiosis vaccines.

Huvepharma's advice is to use a full ionophore program (for example full Sacox) after use of a vaccine, as this will be the most cost beneficial programme.

### Conclusion

Vaccination as a tool for coccidiosis control can bring clear benefits on performance, both in table egg layers and broilers.

Vaccination can be used in different ways depending on the type of birds, the housing system and the reasons for performing the vaccination.

Vaccination should surely be considered as a tool for coccidiosis prevention today and in the future as there are many benefits that cannot be achieved by only using anticoccidials. ■