

# Coccidia Vaccination

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Egyptian Market Overview

# Plan of Talk

- › Types of coccidia vaccines
- › Vaccine Strains
- › Method of application
- › Competitors
- › Market potential
- › Market needs

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# Types Of Coccidia Vaccines

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- › There are two types of coccidia vaccines:
  1. Live non-attenuated
  2. Live attenuated
  3. In Ovo vaccines

# Live Non Attenuated Vaccines

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- › There are 3 vaccines available world wide;
  1. Coccivac<sup>®</sup>, the only one available in the local market.
  2. Immucox<sup>®</sup>
  3. Advent<sup>®</sup>

# Cont. ...

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## 1. Coccivac<sup>®</sup>:

This vaccine was developed in the early 1950s. The "B" and "D" types are different mixtures of Eimeria species; the "T" type is for turkeys.

## 2. Immucox<sup>®</sup>:

This vaccine was developed in Canada by Vetech Laboratories. It is distributed by Wingo.

## 3. Advent<sup>®</sup>:

This vaccine was recently developed in the U.S. by Viridus Animal Health. It is marketed as having more viable oocysts (truly sporulated oocysts that can cause immunity) than other vaccines.

# Cont. ...

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## Limitation

- › Non-attenuated vaccines can cause some lesions and occurrence of coccidiosis in birds because they are not "attenuated" or weakened in some way.
- › It causes a controlled occurrence of coccidia, but it may be necessary to treat for secondary gut disease, using antibiotics or other alternatives such as probiotics.

# Live Non Attenuated Vaccines Product Information

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Coccivac<sup>®</sup> vaccine is a live oocyst vaccine isolated from chickens, prepared from anticoccidial-sensitive strains.



# Strains / Broilers

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- › Coccivac<sup>®</sup>-B vaccine is prepared from anticoccidial-sensitive strains of:
  1. Eimeria acervulina
  2. E. Mivati
  3. E. Maxima
  4. E. tenella.
  
- › It may be administered to chickens at one day of age via spray cabinet or orally on the feed at 1-3 days of age.

# Strains / Breeders and Layers

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## Composition

Coccivac<sup>®</sup>-D contains live oocysts of:

1. *Eimeria acervulina*
2. *Eimeria mivati*
3. *Eimeria maxima*
4. *Eimeria tenella*
5. *Eimeria necatrix*
6. *Eimeria praecox*
7. *Eimeria brunetti*
8. *Eimeria hagani*

# Product Uniqueness

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1. Highly sensitive oocysts, as it was isolated before the development and use of the anticoccidial drugs, restore drug sensitivity.
2. Replaces field oocysts with vaccine oocysts, reducing the pathogenicity and restoring drug sensitivity.

# Therapeutic Superiority

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1. Protects against all important Eimeria spp. to broilers, breeders and layers.
2. Birds remain protected for entire cycle after a single administration.
3. Eliminates undesirable side effects of coccidiostats.
4. No need for complicated drug medication schemes.

# Benefits

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1. Repopulate the field with sensitive oocysts.
2. Ideal for improving long-term control of coccidiosis and performance.

# Attenuated Vaccines

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- › Attenuated coccidiosis vaccines are used in Europe.
- › They contain altered microorganisms, the coccidia used in the vaccine are designed to:
  1. Mature quickly
  2. Have a short life cycle
  3. Low fertility
  4. They are not pathogenic.
- › They are more costly to produce than the non-attenuated vaccines.

# Cont. ...

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› They include:

1. Paracox®
2. Livacox®
3. Viracox®

Currently, non of these are available in the local market

# Inovo Vaccines

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- › It is not available now in the local market, but under registration.
- › Its comparative advantages:
  1. Avoid application faults.
  2. Avoid coccidia lesion accompanied with non-attenuated vaccines administration.
  3. Ensures good flock uniformity.



# Cont. ...

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- › This vaccine is recommended for the vaccination of healthy chickens as an aid in the prevention of coccidiosis caused by three species of coccidia:
  1. *Eimeria acervulina*
  2. *E. maxima*
  3. *E. tenella*.

## Cont. ...

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- › It is recommended for *in ovo* vaccination of 18- to -19-day-old embryonated chicken eggs using the Embrex Inovoject® system.
- › It is essential that the birds be maintained under good environmental conditions and do not receive feed containing anticoccidial drugs.

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# Vaccine Strains

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- › Immunity against coccidia is species-specific.
- › Anticoccidial vaccines include mixtures of species of *Eimeria* that affect chickens.
- › It is especially important to include the three types that cause the most damage in chickens:
  1. *Eimeria acervulina*
  2. *Eimeria maxima*
  3. *Eimeria tenella*

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# Methods of application

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1. Spray cabinet
2. Feed spray
3. Drinking water
4. Edible Gel

# Spray Cabinets

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- › These are used at hatcheries on day-old chicks and may include a dye to indicate application.
- › This is the most uniform method of application, resulting in 90-95% of chicks exposed to the vaccine.

# Spray Cabinet Administration

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## FOR CHICKENS 1 DAY OF AGE

- › The vaccine should be rehydrated at the rate of 210 ml of distilled water for broilers (280 ml for breeders and layers) per 1000 doses of vaccine.
- › Each 100 chicks should receive 21 ml of vaccine solution. (Dye may be added as a marker.)



# Feed Spray

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- › Vaccines are mixed with water in a garden pressure-sprayer and sprayed on a 24-hour supply of feed.

# Feed Spray Administration

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## FOR CHICKENS 1 TO 3 DAYS OF AGE

1. Do not use any medicated drinking water or water disinfectant 24 hours before and after vaccination or during vaccination.
2. Feed sprinkled on paper under the feed line increases the exposure of chicks to the vaccine.
3. Dilute the vaccine at a ratio of 1000 doses/400 ml of non-chlorinated water. Mix well and place in a clean garden type pressure sprayer.
4. Spray the diluted vaccine over the surface of the feed. Agitate the sprayer during administration.
5. For best results, the vaccine should be sprayed on all of the feed.
6. Avoid wetting the feed. Proper application will only dampen the surface of the feed.
7. Allow the chicks sufficient time to ingest the oocysts on the feed before placing more feed in the pans or on the paper.

# Drinking Water

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- › The chicks should be slightly water-starved to encourage them to drink.
- › Since oocysts are heavy and fall to the bottoms of drinkers, they are mixed with a suspension agent to keep them evenly distributed.
- › This method can be used for older chicks.
- › Vaccines cannot be given through proportioners or nipple drinkers.

# Edible Gel

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- › Gel pucks are placed in transport crates or on the floor of the house when the chicks arrive.
- › The gel is brightly colored to attract the attention of the chicks.
- › Immucox<sup>®</sup> is administered in this form.

# General Remarks About Coccidia Vaccines

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- › It is important to apply vaccines uniformly to ensure the birds get equal exposure.
  - If birds receive too much of a non-attenuated vaccine, the parasites can cause lesions.
  - If attenuated vaccines are not given in adequate doses, the birds will be susceptible to field strains of the coccidia.

## Cont. ...

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- › The environment must allow the oocysts to sporulate, since the goal of vaccination is to introduce the parasite in small numbers.
  - Litter should be damp but not wet.
  - After vaccination, birds excrete fresh oocysts onto the litter.
  - Birds then eat these (second cycle) oocysts.
  - Two cycles of replication are needed for good protection.

## Cont. ...

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- › Since the vaccines contain live oocysts, they should not be frozen.
- › Birds need access to their droppings in order for the vaccine to work, since oocysts must be reingested.
  - Vaccines are not effective for birds raised in batteries or cages with wire floors.
- › Vaccines have been used for some time to provide immunity for broiler breeders and commercial egg layers, but there is less use in broilers.

# Cont. ...

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- › Vaccine boosters are not normally given.
  - Broilers usually have a short life and do not need boosters. Longer-lived birds like layers are constantly re-exposed to coccidia, so immunity is topped off constantly.
- › Do not give drugs and vaccines to the same flock - they are opposed to each other.



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# Competitors

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The products that are available now are:

1. Coccivac B
2. Coccivac D

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# Coccidia Vaccine Market Potential

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This market is not properly addressed;

Broiler's vaccine:

› 600,000,000 doses / year

These two markets have the concept;

1. Breeder's vaccine,
  - 10,000,000 doses / year
2. Layer's vaccine
  - 25,000,000 doses / year

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# Market Needs

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1. Coccidia vaccines are highly accepted in breeders and layers market, but they need more awareness about role of coccidia vaccines in broilers regarding production economics.
2. Product availability, since most products are showing shortage.
3. Proper administration which may negatively affect the vaccine efficacy, this pushed some companies to hire technical team for administration.

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