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BREEDER HEALTH

NEWEST TRENDS IN DISEASE MANAGEMENT AND NUTRITION

General Management Guidelines for Coccivac®-D2 in Floor-Raised Breeders

Figure 1. *Standard growth house for broiler breeders.*

Coccivac®-D2 contains six coccidia species (*Eimeria acervulina*, *E. brunetti, E. maxima, E. mivati, E. necatrix, and E. tenella*). It is intended for birds grown beyond eight weeks of age, such as commercial layers or broiler/ layer breeder replacements.

Vaccination is designed to infect the birds at early age with a controlled number of organisms, which will ultimately elicit a solid immune response.

The following factors are critical to achieve a successful immunization of the pullets:

AT THE HATCHERY

- Recommended vaccine storage & handling
- Proper vaccine application (coverage)
- Adequate light & temperature conditions to promote preening

DAYS 1 - 5

Proper management and husbandry practices to create adequate conditions to favor coccidia cycling, such as:

- bird density
- continuous feed and water supply, and
- temperature and relative humidity

DAYS 5 - 28

- continue targeting controlled exposure (cycling) through adequate management and husbandry conditions

Remember: Effective vaccination programs against coccidia start with the ingestion of live sporulated oocyst after vaccine administration. Following initial controlled exposure, coccidia must achieve subsequent life cycles in the bird for full immunity to develop.

KEY POINTS

- Effective immunization programs start with a uniform ingestion of a controlled dose of sporulated oocysts of the different coccidia species soon after vaccination.
- Adequate management practices are critical to promote oocyst sporulation and eventual development of immunity.
- Development of immunity varies according to the coccidia specie and requires a continuous re-exposure to sporulated oocysts.
- The use of coccidiosis medication after vaccination is not recommended as a routine practice. It might affect vaccine cycling and development of immunity.

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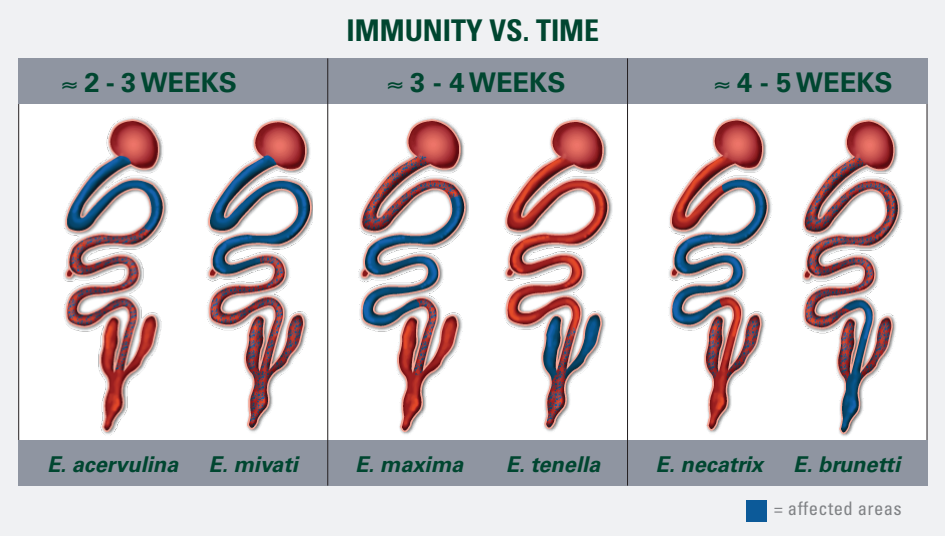


Figure 2. *Areas of the intestinal tract affected by different Eimeria species, and time required to develop proper immunity through vaccination.*

BROODING PRACTICES

Placement Density

Initial stocking density is a critical factor for subsequent cycling of the oocysts present in the vaccine. Suggested density targets through 35 days of age are represented in Table 3. This is a gradual way to release birds to a bigger space, in order to promote continuous recycling of the oocyst and consequent immunity. Always keep in mind not to sacrifice feeder and drinker space.

Partial House Brooding

- Half-house brooding for the first 7 - 14 days. Litter moisture between 25% and 35%.
- High-density flocks may require release from the half-house earlier than 14 days, even during winter, always keeping in mind the critical cycling of the *Eimeria* in the birds (9 days minimum).

Bedding

A good base (four to six inches) of absorbent, fresh, dry bedding material such as wood shavings or rice hulls is highly recommended.

Brooding Temperature

As the different breeds may have specific recommendations for whole house and half house brooding, we suggest following the respective guidelines recommended by the genetic companies. However, it is beneficial to keep in mind:

- Preheat the house for 24 hours before chick arrival to maintain a house temperature of approximately 75°F (24°C). Brooder temperatures – before chick arrival – should start at 90°F (32°C) 2" (5 cm) above the litter at the edge of the canopy. Aim to reduce the temperature by 5°F (3°C) weekly, resulting in a room temperature of 72°F (22°C) at 21 days. Do not rely only on automatic controls or thermostats. Instead, be guided by chick behavior, to fulfill their real needs.
- General recommendations for temperature in the house are listed in Table 4.

Use of Supplemental Feeders/Drinkers

Allow continuous access to feed and water to stimulate the release of sporozoites in the digestive tract. Feed consumption is highly correlated with water consumption – a bird will not consume the appropriate amount of feed if it is deficient in water, and vice versa.

- Supplemental feeders and drinkers are important to help young birds get a good start, especially during the first 7 to 14 days of age.
- Supplemental feeders should be removed gradually to avoid spikes in mortality or encouragement of litter eating.
- Discourage litter eater behavior (consumption of litter instead of feed). Litter eaters will consume not only an excessive amount of oocysts during the immunity-building phase of vaccination, but also harmful bacteria, such as *Clostridium* spp. The result may be excessive vaccination reaction or necrotic enteritis with poor overall flock uniformity and performance.

DAYS POST-VACCINATION

0 - 8 DAYS	0.5 ft² per bird
9 - 14 DAYS	0.75 ft² per bird
28 - 35 DAYS	1 - 1.75 ft² per bird

Table 3. *Suggested density targets through 35 days of age.*

HOUSE TEMPERATURE GENERAL RECOMMENDATIONS

Age (days)	House Temperature
3	86.0°F (30°C)
6	82.4°F (28°C)
9	78.8°F (26°C)
12	77.0°F (25°C)
15	75.2°F (24°C)
18	73.4°F (23°C)
21	71.6°F (22°C)
24	69.8°F (21°C)
27	68°F (20°C)

Table 4. *General recommendations for temperatures in the house in Celsius and Fahrenheit.*

MEDICATION FOR COCCIDOSIS

Amprolium should not be used as a routine treatment. The use of amprolium when not needed can induce inconsistent cycling or complete killing of the oocysts present in the vaccine with suboptimal development of immunity. Determining whether amprolium treatment is needed should be based on postmortem examination of daily mortality from days 16 to 19. If the ceca of dead birds are heavily blood-filled, the flock may be treated with a low dose of amprolium for two days.

Eimeria necatrix and *E. brunetti* produce few oocysts and require additional live cycles to elicit adequate immunity. House conditions and attention to cycling must be maintained through at least four weeks of age.

Guideline for development of immunity

The most important factors to achieve long term immunity against coccidiosis are:

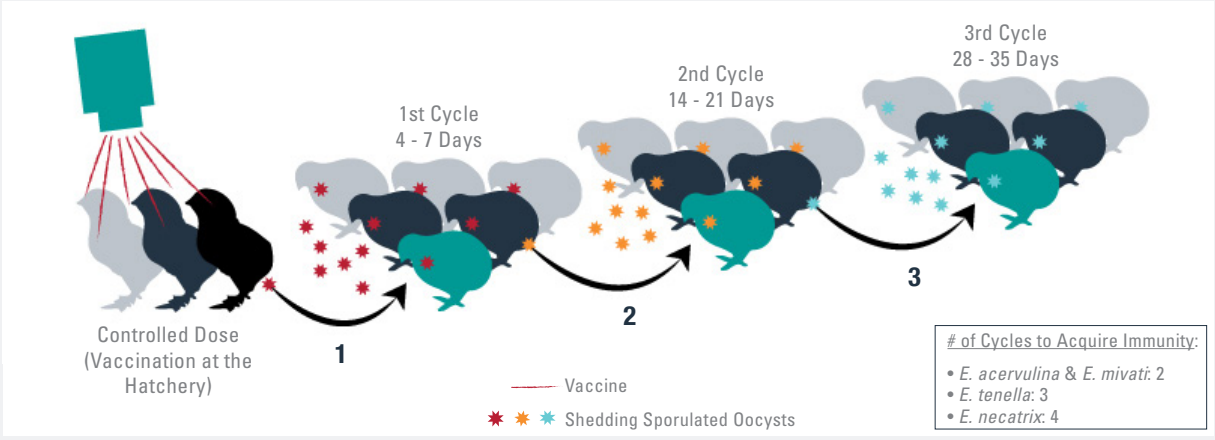
1. Proper vaccination at the hatchery.
2. Feed, water and litter moisture.
3. Promote proper cycling to achieve at least 3 full cycles of the different *Eimerias* present in the vaccine.

The ultimate goal for achieving immunity in long-life birds is to allow an adequate cycling of each of the *Eimeria* species present in Coccivac®-D2. Therefore, correct and uniform application at the hatchery, adequate management and husbandry practices at the farm, and wise utilization of medication products available in the market will contribute to succesful immunization and performance.

Guideline for Development of Immunity

1 Proper vaccination (uniform coverage) at the hatchery.

2 Adequate humidity/temperature levels to stimulate sporulation. Continuous water/feed supply to stimulate the release of sporozoites in the digestive tract.



3 Promote proper cycling to achieve at least three full cycles of the different *Eimeria* species present in the vaccine.

Troubleshooting Factors

PROBLEM	POSSIBLE FACTORS
1. Coccidiosis lesions at post-mortem examination followed by coccidiosis breaks	• Vaccine handling: Was the vaccine frozen or partially frozen at any time? Check refrigerator and data logger temperatures. • Vaccine application: Was the proper dose administered? Were the chicks uniformly covered with vaccine soon after administration? Were the chicks stained with the vaccine marker dye? Was there any equipment failure? • Anticoccidial medication: Did the starter feed contain anticoccidial medication? Was Amprol medicated before 14 days of age? Was a high dose used? • Bird density: Is bird density too low to allow the vaccine to cycle properly? • House conditions: Is the litter too dry to encourage oocyst sporulation? • Bird management: Were birds exposed to excreted oocysts, or did confinement or cleanout prevent adequate access to litter oocysts for in-house vaccine cycling?
2. Excessive coccidia lesions at postmortem or early coccidiosis mortality (14 to 28 days)	• Check vaccine application if early *E. tenella* breaks are observed. Was the proper dose administered? Was the vaccine uniformly distributed? Did the chicks have adequate lighting, temperature, and time to preen? • Litter eaters? (Limited access to feed will drive birds to eat litter. Check crop fill.) • Bird density: Is bird density too high? High moisture = high oocysts in the environment. • Did the birds get immunized? Was vaccine dye used at a recommended level? • House management: Are light and feeding programs encouraging litter-eating habits? This can lead to necrotic enteritis as well.

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