HUVEPHARMA®

ADVENT®

Frequently Asked Questions

What is ADVENT Coccidiosis Control?

ADVENT coccidiosis control is an innovative tool to control coccidiosis in broilers. An orally administered, live vaccine, ADVENT possesses attributes that make it a versatile product.

ADVENT provides maximum protection: Challenge studies involving Advent have shown robust protection by 28 days of age against strong challenges.

Even with the development of strong protection, the post-vaccinal lesions are minimal. Numerous posting sessions, representing millions of broilers, have shown the post-vaccinal lesions to be mild.

ADVENT provides excellent consistency: The patented VIACYST® assay technology enables Huvepharma to ensure the proper amount of sporulated viable oocysts is in each vial of ADVENT vaccine.

Huvepharma's efficient delivery system offers several standard designs of spray cabinets as well as custom installation for every hatchery need.

How were the *Eimeria* strains of ADVENT selected?

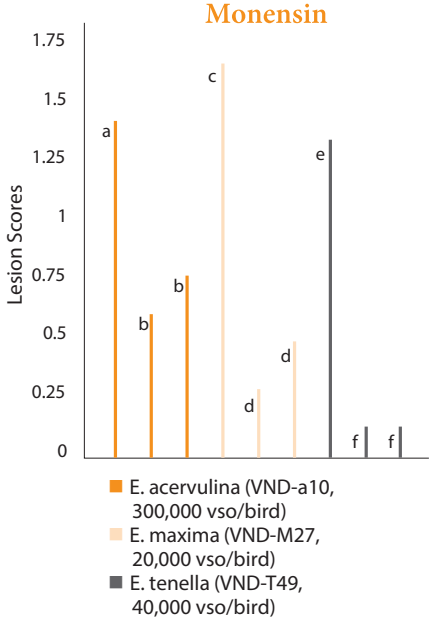
ADVENT contains three carefully selected species of *Eimeria* – *E. acervulina, E. tenella,* and *E. maxima*. These species are responsible for essentially all of the economic impact of coccidiosis in broilers. Other species may have commercial significance in breeders and layers; however, ADVENT is formulated specifically for broilers. For each species, researchers chose the specific isolates best suited to deal with today's field strains.

A large catalogue of *Eimeria* strains were evaluated. The selected strains possess the desired qualities of drug sensitivity, mild but thorough immunity and protection against field challenges. Various strains were tested against wild types from different geographic areas. Years of testing and rejecting various strains occurred before the final selection was made.

Are oocyst species in ADVENT drug sensitive?

Yes. The strains of oocysts in ADVENT have been evaluated against commercially available anticoccidials and have demonstrated sensitivity. Whether you use ADVENT as a stand-alone solution or as part of a rotational program, you can be confident in the protection you receive.

Sensitivity of ADVENT Strains to Salinomycin and Monensin



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What are the strategies for using ADVENT?

There are two main strategies for using ADVENT:

1. Rotational programs: Resting drugs and replacing resistant oocysts with susceptible isolates. This is a well-documented concept and is practiced in most poultry-growing areas of the world. A vaccine is used for several grow-outs and then followed by a coccidiostat program for three grow-outs. There is a change in the poultry houses from drug resistant oocyst to drug-sensitive oocyst. The change-over takes at least two grow-outs following vaccine usage.

2. Continuous use: In the antibiotic-free and organic production markets, the continuous use of a vaccine is essential because there can be no use of anticoccidial drugs.

What is VIACYST?

A critical factor in the creation of a consistently performing vaccine is the development of a method to accurately measure the quantity of viable, sporulated oocysts. To do this, the VIACYST assay was developed, a proprietary assay that allows for formulation of each ADVENT serial based on the number and viability of oocysts for each of the three *Eimeria* species. Based on a patented dye-exclusion technique, this assay differentiates between "viable" sporulated oocysts that can confer immunity and impotent oocysts that cannot. Only those that can contribute to immunity are counted in determining the correct ADVENT dose. No other coccidiosis vaccine manufacturer has this capability. VIACYST ensures each dose of ADVENT contains the optimum number of viable, sporulated oocysts for a consistent, efficacious product.

Why is it important to know the viability as well as the number of sporulated oocysts in a coccidiosis vaccine?

This is a key difference between ADVENT and other coccidiosis vaccines. Measuring the number of viable, sporulated oocysts is the only way to know how many of the oocysts are actually capable of providing an immunizing dose. Non-viable oocysts provide no coccidiosis immunity.

A vaccine containing too many viable oocysts can cause a post-vaccinal reaction that negatively impacts bird performance (excessive lesions, poor feed conversion, weight loss). A vaccine containing two few viable oocysts may not provide a protective level of immunity.

Why does ADVENT appear so much cleaner than other vaccines?

The ADVENT manufacturing process uses state-of-the-art, pharmaceutical-type processing techniques. The process uses extreme care to destroy harmful contaminants while maintaining the viability of the oocysts. Formulation occurs under aseptic conditions in a HEPA-filtered cleanroom to ensure the purity of the vialed product. In addition, ADVENT utilizes a gentle, environmentally friendly storage media, buffered saline, that is clear and clean. This high level of purity provides broiler producers an added degree of assurance that they are getting what they need to immunize their birds and nothing else. The manufacturing process for ADVENT produces a product free of chick anemia virus, infectious bursal disease and *Salmonella*.

How do I administer ADVENT?

Administer ADVENT via spray application directly on day-old chicks. Huvepharma provides spray cabinets that will easily integrate into your operation.

Is ADVENT use restricted to certain seasons or environmental conditions?

Since its introduction in early 2003, producers have successfully used ADVENT throughout the year. In the past, producers tended to limit vaccine use to drier and warmer seasons because of housing and other management concerns. The consistent formulation made possible by VIACYST helps eliminate performance variability that in the past has led to concerns about using a vaccine in the winter months.

Can ADVENT be administered to breeders or layers?

No. ADVENT is currently approved only for use in broilers. ADVENT is formulated with those species of oocysts that are economically important to broilers.

What dosage options are available?

ADVENT is offered in units of 10 x 10,000 or 3 x 40,000 dose vials. The minimum order size is one unit. The appropriate amount of green dye is included in each shipment.

Can I dilute ADVENT beyond label specifications and still have an effective product?

No. ADVENT is tested and formulated to provide the most precise level of control available. To ensure the best performance, follow all label directions exactly.

Can I mix ADVENT with other vaccines and administer them at the same time?

Huvepharma cannot recommend mixing ADVENT with other vaccines. ADVENT has not been tested for use in combination with other vaccines.

What should I do if I receive ADVENT with chill packs that are no longer cold?

ADVENT is shipped by overnight delivery service, so this should not occur. If the product is warm to the touch, contact your local Huvepharma representative

How is Huvepharma providing technical field support for ADVENT?

In addition to using the Huvepharma technical support team, Huvepharma employs the services of several top veterinarians specializing in coccidiosis control. These specialists will assist you with on-farm use of ADVENT and help you with any questions. Please contact your local Huvepharma representative for more details.

Whom should I call with questions regarding ADVENT?

Contact your Huvepharma sales representative, who is dedicated to helping you successfully integrate ADVENT to enhance your operation.

What is the shelf life of ADVENT?

The shelf life is one year; therefore the vaccine must be used within 12 months from the manufacturing date.

What type of lesions should I expect on birds vaccinated with ADVENT?

Lesions with ADVENT generally start by two weeks, peak between three and four weeks, and subside by five weeks of age.

The incidence of lesions is greater during the first flock on a vaccine program and tends to decrease with successive flocks. This phenomenon may be due to coccidial challenges from preceding drug program flocks, so incidence and severity of coccidial lesions on a drug program may influence the lesions during the first grow-out on ADVENT.

What sort of tests does the USDA require for approving a coccidiosis vaccine?

The USDA requires each new product to be able to demonstrate safety, efficacy, potency and identity.

Safety – Prior to ADVENT receiving its license, it had to be demonstrated in commercial facilities that ADVENT did not cause any higher level of mortality (measured at two weeks of age) than non-vaccinated controls. In addition, every serial produced is tested for safety in birds before it can be released.

Efficacy – The primary test of efficacy used by the USDA is protection against lesions. Birds are vaccinated with the intended commercial dose. Later these birds are orally administered a number of oocysts known to cause lesions. This is done separately for each of the species contained in the vaccine. In order for the vaccine to be deemed efficacious, it must show a statistically lower level of lesions than the non-vaccinated (but challenged) birds.

Potency – Every serial is tested to demonstrate that the vials contain the intended number of viable oocysts previously demonstrated to be efficacious.

Identity – In addition to simply counting the number of oocysts, it is required that each serial demonstrate that it contains the right amount of each of the intended species. A masterseed of each of the species is maintained for inoculating the production birds used to manufacture ADVENT and it must be demonstrated that no changes occur with multiple cycling of the masterseed.

Will using ADVENT cause higher levels of necrotic enteritis (NE) or mortality?

Based on our field experience, we know that using ADVENT will not cause more NE or mortality than other commercial coccidiosis vaccines. The precise formulation of ADVENT helps assure that birds receive a dose that is high enough to promote immunity without causing excessive lesions that might encourage NE. The specific strains for each of the three species of *Eimeria* used in ADVENT were also chosen to convey rapid immunity without excessive lesion formation. ADVENT has been used in hundreds of millions of birds in commercial settings with no evidence of increased NE or mortality.

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Advent is a New Zealand restricted veterinary medicine, ACVM No. A11395

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