

COCCIDIOSIS IN POULTRY

Coccidiosis is one of the most common and costly diseases in poultry worldwide. It is caused by the parasite *Eimeria* and negatively impacts the health and performance of broilers, turkeys and layers seven days of age or older.

When birds ingest *Eimeria* oocysts, the protozoan parasites pass into the bird's intestinal tract and invade the cells of the intestinal wall. This results in gut tissue damage, a leaky intestinal barrier and opens the door for other enteric challenges. What's more, coccidiosis can lead to poor digestion, reduced nutrient absorption, decreased weight gain, other enteric diseases and even death.

The parasite is transmitted through oocyst-contaminated litter and cycles every 4-7 days. Reducing the use of antibiotics has created challenges for disease management and constant vigilance is necessary for preventing parasite resistance to anticoccidials.

COCCIDIOSIS CYCLE

1 Birds eat litter containing *Eimeria* oocysts.

2 *Eimeria*-sporulated oocysts enter intestinal epithelial cells (IECs) and replicate.

3 Replicated/reproduced *Eimeria* destroy IECs, causing barrier breakdown.

4 *Eimeria* travel into lower digestive tract and are excreted in feces.

5 Excreted *Eimeria* build up in poultry litter over time, resulting in persistent coccidiosis challenge.

CAUSES

- Coccidiosis is caused by multiple species of *Eimeria* in poultry.
- Each species of *Eimeria* infects a different area of the intestinal tract (Figure 1).
- *Eimeria* in chickens: *E. praecox*, *E. acervulina*, *E. maxima*, *E. tenella*, *E. necatrix*, *E. mitis*, *E. brunetti*
- *Eimeria* in turkeys: *E. gallopavonis*, *E. adenoids* and *E. meleagrimitis*

SYMPTOMS

- Loss of appetite
- Weight loss
- Poor feed conversion
- Dehydration
- Irregular droppings
- Ruffled feathers
- Huddling
- Depression
- Death



MANAGEMENT OF COCCIDIOSIS

Hygienic farm practices

Biosecurity protocols, litter management, clean water lines and stocking density management can minimize oocyst transmission.

Vaccinations

Coccidiosis vaccines allow immunity to develop and can reduce the *Eimeria* challenge in the barn over time.

Anticoccidials

Anticoccidials can inhibit disease before symptoms emerge and damage is done.

Natural alternatives

Phytogenics and probiotics offer natural antimicrobial and antioxidant qualities to boost immunity and support performance potential.

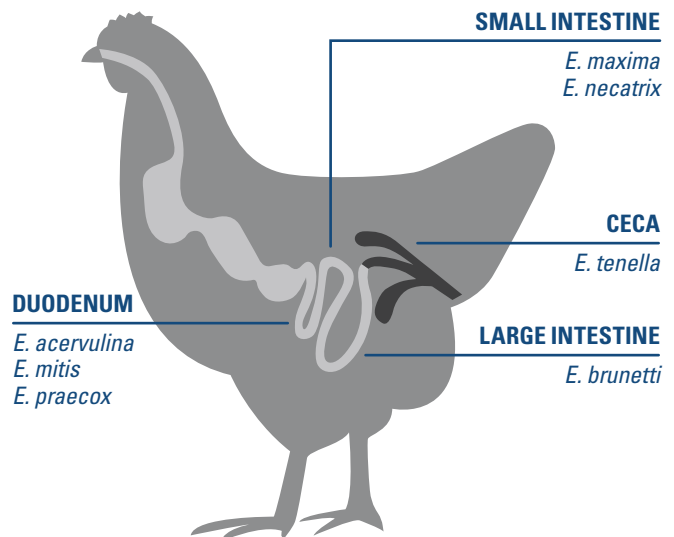


Figure 1: *Eimeria* intestinal infection locations

KEMIN SOLUTION:

VANNIX™ C4

A natural antibiotic alternative
VANNIX™ C4 can help manage enteric challenges by improving intestinal integrity naturally.

PHYTOGENICS AND PROBIOTICS TO BLAST ENTERIC CHALLENGES

VANNIX™ C4 is a proprietary blend of natural, phytogenic molecules — including tannins — and a spore-forming probiotic (*Bacillus subtilis* PB6). Research has shown that the combination of phytogenics and probiotics in VANNIX C4 can work synergistically to reduce the impact of enteric pathogens — like *Eimeria* and *Clostridium perfringens* — on poultry gut health and performance. VANNIX C4 can also be used in coccidiosis-vaccinated flocks to support intestinal integrity and maintain poultry performance.

Gut Health Triple Check: KNOCK OUT

Kemin offers products that CLEAN UP contaminants, BUILD UP intestinal strength and KNOCK OUT harmful pathogens. VANNIX C4 was developed for the KNOCK OUT category by supporting intestinal balance to inhibit or eliminate harmful pathogens from infiltrating the body.

The synergistic ingredients in VANNIX C4 protect gut health in four key ways, thereby supporting poultry performance:

1

Phytogenics and probiotics to inhibit growth of pathogenic bacteria



2

Tannic acid extract to improve intestinal integrity and provide anti-parasitic activity



3

***Bacillus subtilis* PB6** — a natural probiotic — for maintenance of a healthy and balanced intestinal microflora



4

Plant polyphenols to help mitigate enteric stress via antioxidant and anti-inflammatory activities



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