



COXIELD

*A NATURAL ALTERNATIVE
TO ANTICOCIDIAL DRUGS*

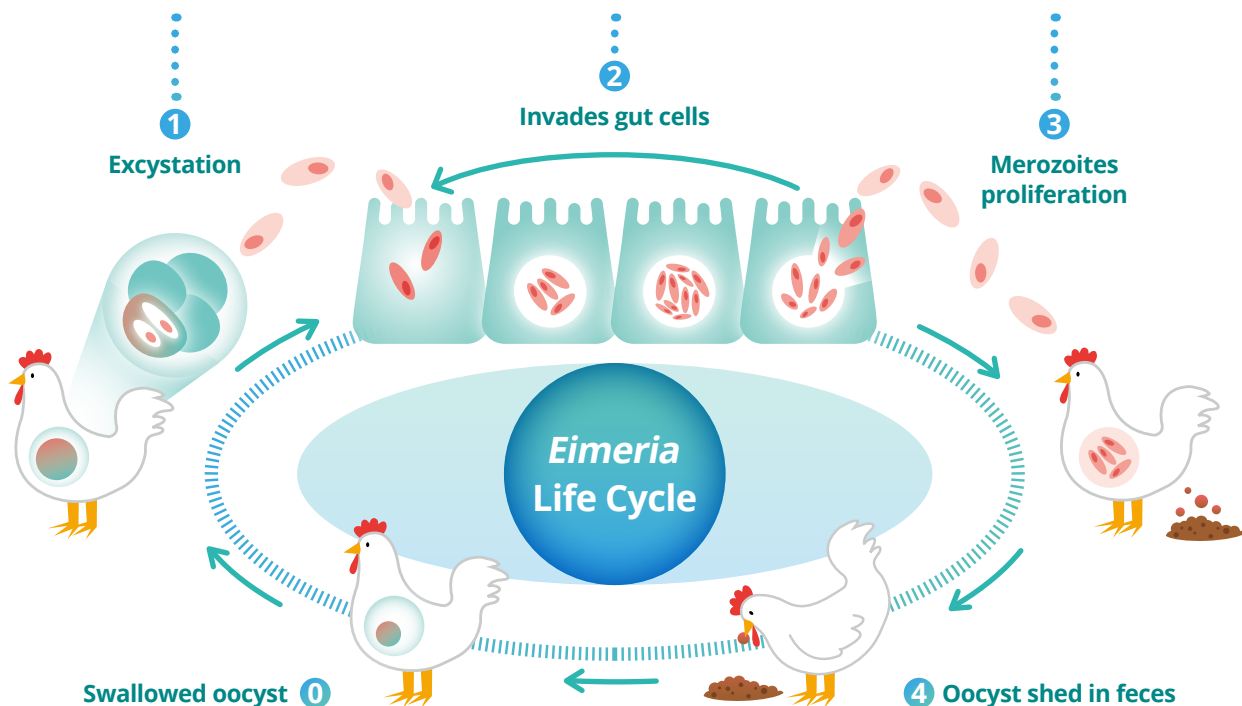
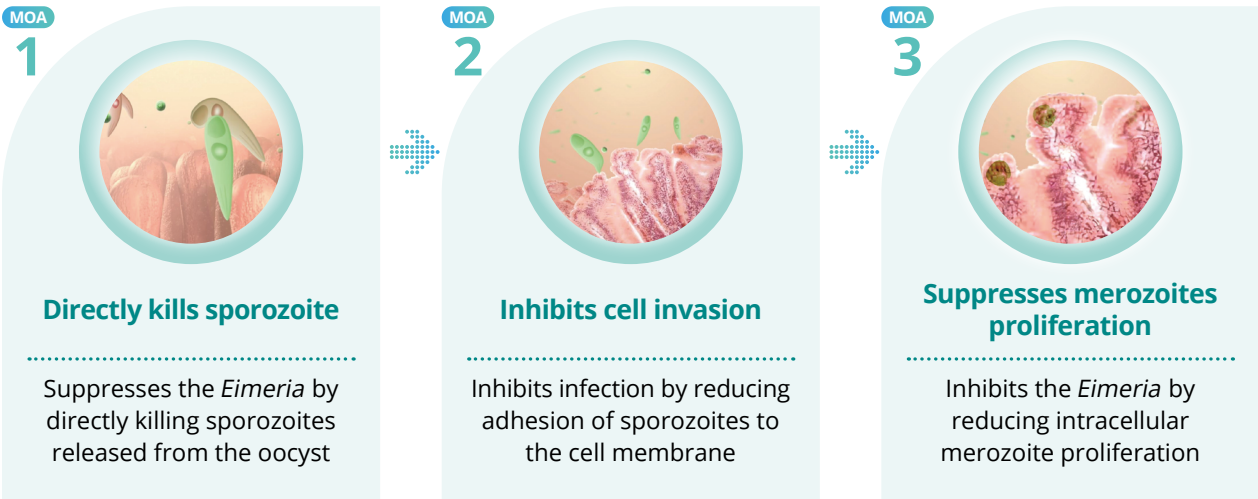
BEST ANTICOCCIDIAL ALTERNATIVE

COXIELD

COXIELD represents an innovative anticoccidial solution formulated with an optimal blend of two phytochemicals, exhibiting three distinct mode-of-actions. It directly kills sporozoites, inhibits cell invasion, and hinders the intracellular proliferation of infected merozoites within cells, thereby inhibiting throughout the early phase of *Eimeria* lifecycle. As a result, growth performance of broilers is improved, while oocyst discharge and lesion score are reduced.

COXIELD stands out as the best choice for an anticoccidial alternative to chemical drugs and vaccines without residue and slow protection issues, respectively.

Triple Mode-of-Actions in the *Eimeria* Life Cycle



Product Development and Verification

A novel ingredient combination to defeat coccidial infection was selected by CJ BIO's big data analysis and verified via a series of *in vitro*, *ex vivo*, and *in vivo* challenge tests



COXIELD acts at every step of the early phase of the Eimeria lifecycle unlike other coccidiostats including the synthetic chemical, ionophore drug and phytogenic product.

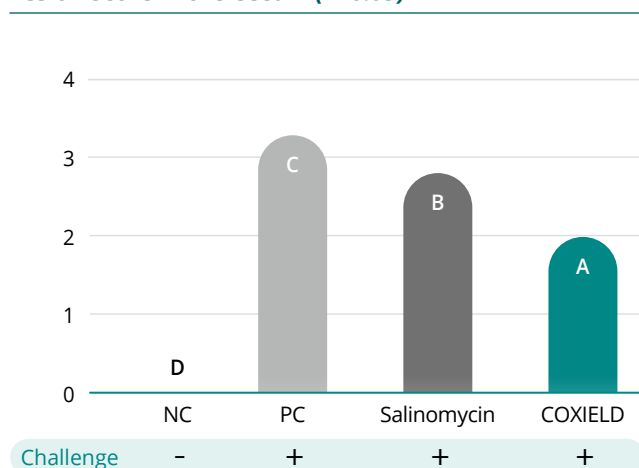
- Reduction rate of sporozoites viability, cell invasion (MDBK & Vero cell), merozoites proliferation was measured with *E. tenella* by in-house test: <25% +, <50% ++, <75% +++, <100% ++++

Coccidiostats	MOA 1 (Kills Sporozoite)	MOA 2 (Stops Cell Adhesion)	MOA 3 (Stops Coccidia Replication)
COXIELD	++++	++	+++
Ionophore	++	++	+
Diclazuril	-	-	+++
Phytogenic A	-	+++	-

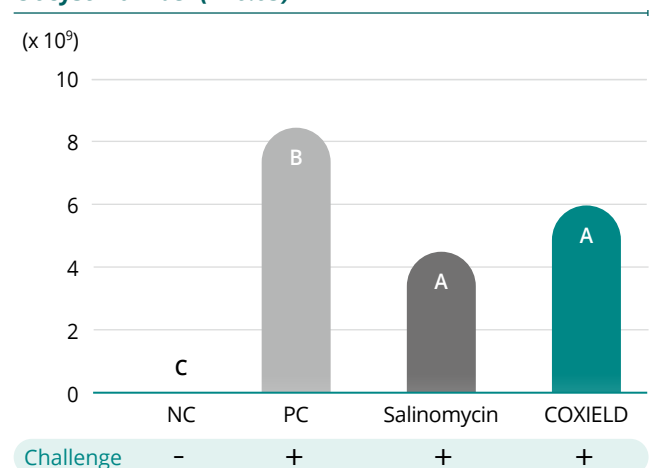
Product Verification: *In vivo*

Trial 1 COXIELD reduced the lesion score and oocyst discharge in broilers challenged with *Eimeria tenella* (an academic trial in the Republic of Korea)

Lesion Score in the Cecum ($P < 0.05$)



Oocyst Number ($P < 0.05$)

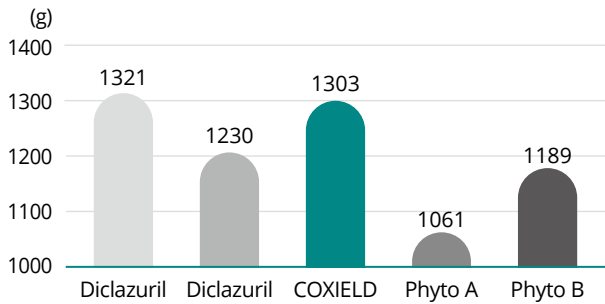


Product Verification: *In vivo*

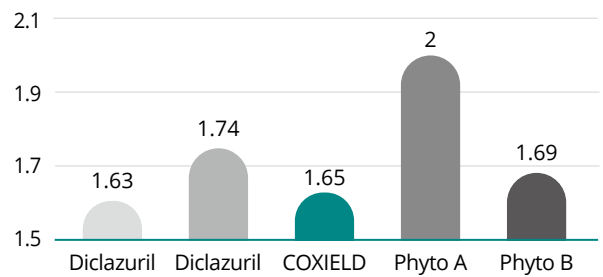
Trial 2 COXIELD improved broiler's growth performance compared to other coccidiostats

- Challenge study using mixed strains of *E. acervulina*, *E. tenella*, *E. maxima*, *E. necatrix* in research farm in Indonesia
- Body weight corrected FCR (1.5 kg): $FCR - ((\text{average final body weight} - 1500)/70/100)$

Body Weight



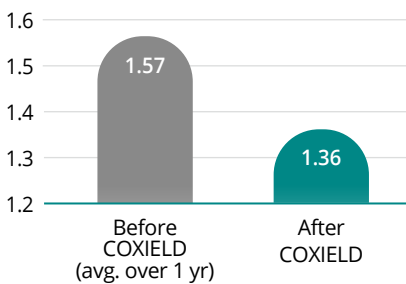
BWcFCR



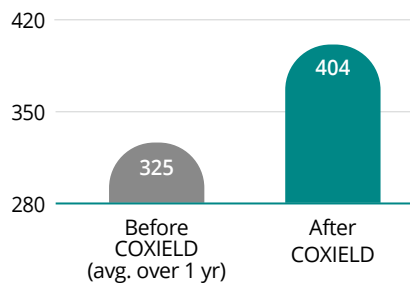
Trial 3 Supplementation of COXIELD in broilers infected with coccidiosis reduced lesion score, FCR, and feed costs in a commercial farm (40,000 broilers)

- Farm with complex infections of three types of coccidia (*E. acervulina*, *E. tenella*, *E. maxima*)
- Performance index = $\frac{[(100 - \text{mortality}) \times \text{BW}(\text{kg})]}{\{\text{day of growth} \times \text{FCR}\}} \times 100$
- Body weight corrected FCR (1.5 kg): $FCR - ((\text{average final body weight} - 1500)/70/100)$

FCR



Performance Index



Intestinal Lesion



COXIELD is a superior coccidiostat to other options

Differentiation from other anticoccidial chemical drugs and nature alternatives

vs Anticoccidial drugs



No withdrawal period



Less resistance

vs Other natural alternatives



Superior efficacy verified in the fields



Exhibition of three distinct MOA

