

# ZOOTECNICAL AND ECONOMICAL EVALUATION OF THE USE OF A LIVE ANTICOCCIDIAL VACCINE IN ROTATION WITH ANTICOCCIDIAL PRODUCTS IN BROILER CHICKENS: RESULTS OF A SET OF FIELD TRIALS FROM BELGIUM AND THE NETHERLANDS

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## INTRODUCTION

In industrial poultry production, designing a preventive program for controlling coccidiosis is one of the most important decisions, in order to safeguard or improve zootechnical and financial results. Live coccidiosis vaccines are becoming increasingly popular, as they often provide a solution when the in-feed anticoccidials become inefficient, in fact they are able to promote the restoration of the sensitivity of *Eimeria* field strains towards anticoccidials (Williams, 2002; Mathis & Broussard, 2006; Peek & Landman 2011). The objective of this study was to evaluate the efficacy of a live coccidiosis vaccine (Hipracox<sup>®</sup>) to prevent clinical coccidiosis in 2 broiler farms. Moreover, we evaluated the zootechnical impact before, during and after coccidiosis vaccination, when returning to in-feed anticoccidials. The performance data of approximately 495,000 birds for Farm 1 and 960,000 birds for Farm 2 were evaluated.

## RESULTS & DISCUSSION

### 1. MORTALITY

The average mortality before vaccination was 3.13%. During vaccination this mortality dropped to 2.67%, which is a 14.7% improvement. After vaccination the mortality rose again to 2.91%, which is still a 7.03% improvement.

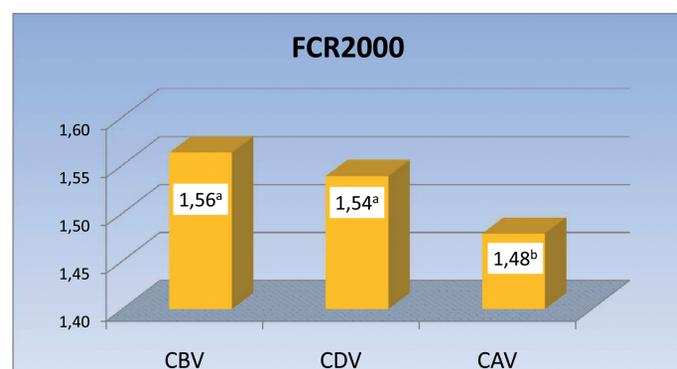
### 2. BODY WEIGHT

Since final slaughter ages were different, average live body weights have been corrected at the same age (41 days). Before vaccination average body weight (BW) was 2409 grams, whereas after vaccination it was 2491 grams: an improvement of 82 grams.

### 3. FEED CONVERSION RATIO (FCR)

FCR was corrected for the weight of 2000 gram birds. FCR<sub>2000</sub> during vaccination had 2 points of improvement and after vaccination it improved 8 points. When analyzing data of overall average FCR<sub>2000</sub> of cycles before vaccination (CBV), cycles during vaccination (CDV) and cycles after vaccination (CAV) using a one-way analysis of variance (ANOVA) test, we found a statistically significant difference at  $P \leq 0.05$  (Figure 1).

Figure 1. Overall FCR2000 of CBV, CDV and CAV.

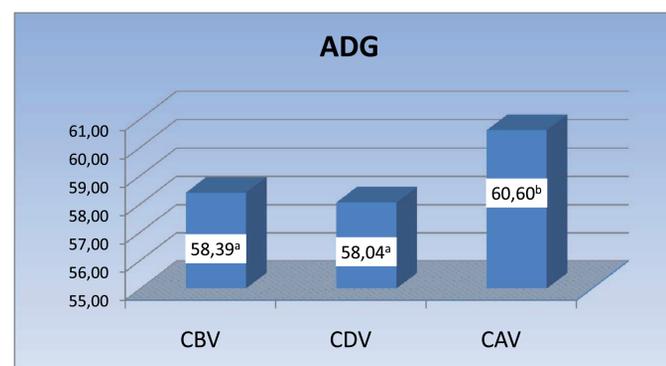


Values with different superscript letters show a statistically significant difference at  $P \leq 0.05$  by using a one-way analysis of variance (ANOVA) test.

### 4. AVERAGE DAILY GAIN (ADG)

CBV had an ADG of 58.39 grams, whereas CDV had a lower ADG of 58.04 grams. CAV had an improvement of 2.21 grams resulting in an overall ADG of 60.60 grams. When analyzing the data of overall ADG of CBV, CDV and CAV using a one-way analysis of variance (ANOVA) test, we found a statistically significant difference at  $P \leq 0.05$  (Figure 2).

Figure 2. Overall ADG of CBV, CDV and CAV.

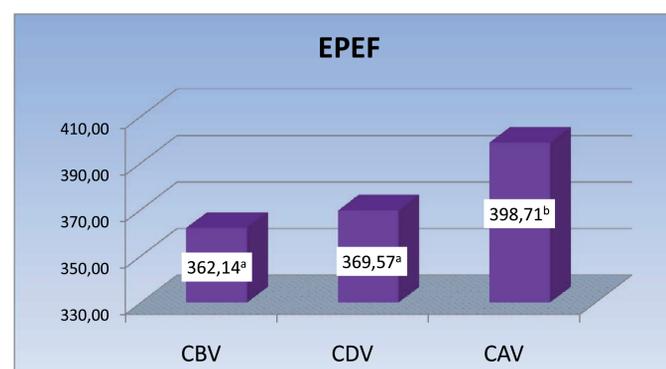


Values with different superscript letters show a statistically significant difference at  $P \leq 0.05$  using a one-way analysis of variance (ANOVA) test.

### 5. EUROPEAN PRODUCTION EFFICIENCY FACTOR (EPEF)

Before vaccination EPEF for all houses was 362, while during vaccination improved to 370: 8 points. After vaccination it improved 37 points compared to before vaccination. When analyzing with a one-way analysis of variance (ANOVA) test, we found the data of overall EPEF of CBV, CDV and CAV to have a statistically significant difference at  $P \leq 0.05$  (Figure 3).

Figure 3. Overall EPEF of CBV, CDV and CAV.



Values with different superscript letters show a statistically significant difference at  $P \leq 0.05$  by using a one-way analysis of variance (ANOVA) test.

### 6. ANTIBIOTIC USE DURING VACCINATION

Compared to cycles before vaccination, antibiotic use was not higher in terms of kg of active product during vaccination on both farms. The main difference between before and during vaccination was the age of the treatments: about one week earlier for the vaccinated cycles and thus the total amount of antibiotics was reduced.

## CONCLUSIONS

We observed no statistical differences between pre- and inter-vaccination in any case, while absolute results of mortality, FCR<sub>2000</sub> and EPEF improved while vaccinating. After vaccination, absolute results for all parameters are better compared to before vaccination, while ADG, FCR<sub>2000</sub> and EPEF are statistically better than before and during vaccination. Thus, it seems clear that anticoccidial vaccination promotes the restoration of the sensitivity of *Eimeria* field strains towards anticoccidials. In conclusion, for the type of farms encountered during the trial, vaccination against coccidiosis with Hipracox<sup>®</sup> proved to be a valid economical approach during vaccination and especially when returning to in-feed anticoccidials.

## REFERENCES

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