

PERFORMANCE COMPARISON BETWEEN BROILERS POSITIVE AND NEGATIVE FOR ANTIBODIES AGAINST THE *CHICKEN ANEMIA VIRUS*

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ABSTRACT

The chicken anemia virus (CAV) is present in virtually every country investigated, Brazil including. The aim of this study was to determine what the difference in performance is between positive (progeny of breeders vaccinated or with natural infection) and negative broilers to the presence of antibodies against the CAV in currently intensive raising systems. As a result, it was observed that negative broilers were significantly heavier than positive broilers. Negative males had a final weight 5.43% higher than positive males. There was no significant difference among different treatments in relation to parameters as mortality and feeding conversion. These study indicated that the presence of antibodies against CAV in broilers – may it be through vaccination or natural infection of breeders – did not generate progeny with superior performance under the tested raising conditions.

Key words: chicken anemia virus, performance, broiler, vaccine, antibody.

INTRODUCTION

The chicken anemia virus (CAV) was isolated for the first time in Japan (7). Since then, its presence has been reported in commercial raising facilities of many countries, Brazil including (1). The clinical form of the disease occurs in birds aged 2 to 4 weeks, since they are infected until 15 days of age. The control of the chicken infectious anemia is through the transference of maternal antibodies from breeders to progeny (2). An attenuated CAV vaccine has been currently used for the immunization of breeders for the disease control. Due to the high cost of this vaccine and the lack of previous studies in Brazil, the present work has the aim to verify the benefits of vaccine usage in Brazilian commercial conditions.

MATERIALS AND METHODS

The experiment was carried out in a poultry farm in the South of Brazil. An attenuated live virus vaccine was administered to

breeders 16 weeks old according to the manufacturer's recommendations. After 17 weeks of the vaccination, the serum of both vaccinated and non-vaccinated breeders was examined for antibodies to CAV with a commercial ELISA kit (Idexx Laboratories®). Breeders were divided in three groups: A- vaccinated breeders with high titers (above 8661); B- non-vaccinated breeders with average titers (3000 to 5000) and; C- non-vaccinated breeders and negative (below 1000). Eggs were collected from each group of breeders, identified and incubated. The chicks from those breeders were reared in 5 cages with 6 boxes each formed by: Box T1m- 55 male chicks of the progeny of group A; Box T1f- 55 female chicks of the progeny of group A; Box T2m- 55 male chicks of the progeny of group B; Box T2f- 55 female chicks of the progeny of group B; Box T3m- 55 male chicks of the progeny of group C; Box T3f- 55 female chicks of the progeny of group C. Each cage was reared in a different property, so the experiment was repeated 5 times. Experimental birds received the same handling and feeding of the rest of the

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birds in the houses. By the time they were 47 days old, the broilers were weighted and sent to slaughter. Mortality, food conversion and final average weight were determined. The titers of antibodies of the broilers in the experiment were analyzed with the ELISA in the first and last day of life. For statistical analysis, the software SAS for Windows (version 6.12, SAS Institute Inc., Cary, NC, USA) was used for an analysis of variance.

DISCUSSION

By comparing the results observed in this paper with previous works (3,4,5,6), we can notice some different outcomes. In relation to mortality and feeding conversion, the results found here were similar to those previously reported, i.e., there is no significant difference in mortality (3,4,6) and in feeding conversion (3,4,5) if we compare birds born positive or negative to antibodies against the CAV under the commercial raising facilities. As for final average weight, the results we found differ from those of previous researches, which have found no difference (3,4) or found significant difference in the weights of birds born with maternal antibodies (5,6). It is likely that the differences found in the present study are due to the fact that there has been no challenge with CAV. That was corroborated by the fact that broilers did not present antibodies against the CAV at the moment of slaughter. It can be concluded that the transmission of maternal antibodies did not account for any benefits for broilers under the conditions tested.

RESULTS

Negative broilers (T3) were significantly ($p < 0.05$) heavier than broilers positive to the presence of antibodies against the CAV both with protective titers resulting from the vaccination (T1) and with average titers (T2). There has been no significant difference in final average weight in females (Table 1).

Final average weights in males in the T3 treatment were 5.43% higher than in males in the treatments T1 and T2 (Table 2).

There was no significant difference ($p > 0.05$) among different treatments in relation to parameters as mortality and feeding conversion. All broilers were negative to antibodies against CAV at the moment of slaughter.

Table 1. Final average weights according to sex and treatment.

Treatment	T1	T2	T3
Male (g)	2606.2 ^a	2558.8 ^a	2722.7 ^b
Female (g)	2195.9 ^c	2183.8 ^c	2217.9 ^c
Total (g)	2401.1	2371.3	2470.3

Different letters indicate significant difference ($p < 0.05$).

Table 2. Comparison of final average weights along the different treatments.

Treatment	*T1+T2/2 (g)	T3 (g)	T3>T1+T2/2 (%)
Males	2582.5	2722.7	5.43

*Final average weights of T1 and T2 were not different ($p > 0.05$).

RESUMO

Comparação de desempenho entre frangos positivos e negativos para anticorpos contra o vírus da anemia das galinhas

O vírus da anemia das galinhas (CAV - "chicken anemia virus") está presente em praticamente todos os países investigados, inclusive no Brasil. O objetivo deste trabalho foi determinar qual a diferença de desempenho, comparando frangos positivos (progênie de matrizes vacinadas ou com infecção natural) com frangos negativos para a presença de anticorpos contra o CAV, no sistema atual de criação intensiva. Como resultado, foi observado que os frangos negativos foram significativamente mais pesados que os frangos positivos. Os machos negativos tiveram um peso final 5,43% superior ao dos machos positivos. Não houve diferença significativa entre os tratamentos em relação aos parâmetros de mortalidade e conversão alimentar. Este estudo indicou que a presença de anticorpos contra o CAV em frangos de corte, seja através da vacinação ou infecção natural das matrizes, não gerou uma progênie com melhor desempenho nas condições de criação testadas.

Palavras-chave: vírus da anemia das galinhas, desempenho, frangos de corte, vacina, anticorpo.

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