

Evaluation of the effects of vaccination with a HVT-IBD vector vaccine on bursa Fabricii, production parameters and meat properties in broilers

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The objective of this field study was to assess the effects of vaccination with a Herpesvirus of Turkey-infectious bursal disease HVT-IBD vector vaccine (VAXXITEK HVT+IBD) on bursa Fabricii, productivity and meat properties, in comparison with an immunocomplex vaccine.

Material & methods

The study was performed during 2012, in an area of Spain considered at high Gumboro disease pressure, in a total of about 800,000 broiler chickens distributed in two groups of 12 flocks each. Birds were all vaccinated by in ovo route in the same hatchery: the first group with one dose of vector vaccine, the control group with one dose of IBD virus-immunocomplex vaccine mixed with one dose of Herpesvirus of turkey vaccine.

Results / Discussion

Significantly higher bursa Fabricii weights were observed in the vector vaccine group, particularly in chickens 40-42 days old (Tables 1). In the same flocks the lymphoid follicles had a larger size and a limited depletion versus control group demonstrating safety of the vector vaccine. ELISA test to measure antibodies against VP2 of IBD virus at 22 days of age, showed higher level of antibodies in flocks vaccinated with the vector vaccine. Mean production and economic parameters (Tables 2) were in all cases favorable to the vector vaccine group, with 2.14% lower mortality, 0.02 points less in feed conversion index, 16 points higher in European performance index, and production cost of 1 Kg of meat resulted 0.014 € lower. At the slaughterhouse (Figure 1), the proportion of carcasses classified as first quality was 2.2% higher in the vector vaccine group. The associated economic improvement was of 0.036 € per broiler of 2.5 kg mean body weight. The present study demonstrated that the use of the vector vaccine is associated with an improvement in production parameters at farm and slaughterhouse level in comparison with those obtained with an immunocomplex vaccine.

Key words

Vector vaccine, in ovo vaccination, production parameters.

Tables 1: Mean values of weight (g) measured at the farm level in broilers from control and VAXXITEK HVT+IBD groups at 22 and 40-42 days of age, as well as indicators of lymphoid depletion in the bursa at 40-42 days.

Flocks	22 days broilers				
	Individual weight	Bursa of Fabricius		Spleen	
		Weight	Relative weight	Weight	Relative weight
Control	665.49*	0.97*	1.5*	0.64*	1
VAXXITEK HVT+IBD	741.4*	1.33*	1.8*	0.76*	1

*Statistical significant differences (p<0.05).

Flocks	40-42 days broilers							
	Individual weight	Bursa of Fabricius					Spleen	
		Weight	Relative weight	Lymphoid depletion	Follicle diameter	Number follicles/mm ³	Weight	Relative weight
Control	2023.46	0.87*	0.4*	3.43	612.43*	9.58*	2.30	1.1
VAXXITEK HVT+IBD	2055.49	1.87*	0.9*	2.13	761.43*	5.50*	2.36	1.2

*Statistical significant differences (p<0.05).

Tables 2: Mean values of productive parameters determined at the farm and the slaughterhouse in flocks from control and VAXXITEK HVT+IBD groups.

Flocks	Production parameters at farm					
	Mortality (%)	Final weight (kg)	Daily weight gain (g)	Conversion index	Conversion index for 2.5 kg	FEEP (measure of performance)
Control	9.63%	2.477	56.46	1.984	1.992	260.49
VAXXITEK HVT+IBD	7.49%	2.568	58.31	1.964	1.954	276.60

Flocks	Production parameters at slaughterhouse			
	Carcass quality			Decrease
	First	Second	Third	
Control	82.4%*	17.1%*	0.36%	29.2%
VAXXITEK HVT+IBD	84.6%*	15.3%*	0.32%	28.8%

*Statistical significant differences (p<0.05).

Figure 1: Broiler carcass processing at slaughterhouse.

