

A field study in commercial layers to evaluate the effects of a HVT-IBD vector vaccine on production performances in comparison with a live IBD vaccine

Devaud I.¹, Herin J.B.¹, Trotel A.², Pagot E.² & Voisin F.²

¹ *Merial S.A.S., 44150 Ancenis France*

² *Centre technique des productions animales, 22440 Ploufragan France*

The objective of the field trial was to evaluate, by a blind positive-controlled study, the effects of vaccination with an HVT-IBD vector vaccine (VAXXITEK HVT+IBD) [1] on a commercial farm in comparison with a conventional infectious bursal disease live vaccine.

Material & methods

Two groups of 250 day-old brown pullets each, were set at the hatchery. One group received the vector vaccine at day-old by subcutaneous injection at the hatchery (test group); the other group was vaccinated on farm by drinking water with a classical Gumboro intermediate strain vaccine at 3 and 4 weeks of age (control group) [2]. Both groups were reared in the same pullet house and were then kept in cages in the same industrial laying house. Targeted parameters were: body weight evolution and its homogeneity during the rearing phase; egg laying rate and egg quality during the laying period. A serological monitoring [3] was implemented to evaluate the antibody response against classical vaccinations and viral infections of layers.

Results / Discussion

As compared to the control group, in the test group an improvement in several production performances was observed as follows: body weight evolution during the 15 weeks of rearing ($p=0.0022$), body weight on week 10 (931.7 g versus 905.2 g, $p<0.001$) and on week 15 (1323 g versus 1303 g, $p=0.023$), average laying rate (89.07 % versus 87.89 %), 3.88 extra marketable eggs in 47 weeks of lay (Table 1) ($p<0.001$), average egg weight (63.6 g versus 62.4 g, $p<0.001$), Haugh units (89.56 U versus 88.59 U, $p=0.012$) and breaking strength (38.845 N versus 38.075 N, $p=0.022$) during the laying period (Table 1) (Figure 1). Global serological response against Gumboro disease [4], infectious bronchitis, Newcastle disease and avian pneumovirus infections was not significantly impaired whatever the group, however it was more homogenous against Gumboro disease in the test group.

Key words

Vector vaccine, zootechnical parameters, laying hens.

References

- [1] Le-Gros F.X., Dancer A., Giacomini C., Pizzoni L., Bublot M., Graziani M., Prandini F., 2009, Field efficacy trial of a novel HVT-IBD vector vaccine for 1-day-old broilers, *Vaccine*, 27, 592-596.
- [2] Muller H., Mundt E., Eterradossi N., Islam M.R., 2012, Current status of vaccines against infectious bursal disease, *Avian Path.*, 41, 133-139.
- [3] Prandini F., Bublot M., L-Gros F.X., Dancer A., Pizzoni L., Lamichhane C., 2008, Assessment of the immune response in broilers and pullets using two ELISA kits after in ovo or day-old vaccination with a vectored HVT+IBD vaccine (VAXXITEK HVT+IBD), *Zootecnica, Sep.*, 40-50.
- [4] van den Berg T.P., Eterradossi N., Toquin D., Meulemans G., 2000, Infectious bursal disease (Gumboro disease), *Rev. Sci. Tech. Off. Int. Epiz.*, 19, 527-543.

Table 1: Egg production performances by group from 18 to 65 weeks of age.

Groups	Total laid eggs	Laying rate	K _{hi} ² test (p<0.001)
Control group	65,564	87.89 %	
Test group	66,464	89.07 %	

Figure 1: Egg production monitoring.

