

Evaluation of compatibility and production performance in commercial layers immunized with vectorized vaccines rHVT-H7 and rHVT-F and immune-complex vaccine against Gumboro applied simultaneously in the hatchery

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Among the main diseases that affect the productivity of laying birds in Mexico are Gumboro Disease (IBD), Newcastle Disease (NDV), and highly pathogenic Avian Influenza subtype H7N3. Prevention of diseases through vaccination is of utmost importance. However, the use of conventional killed vaccines in commercial layers has had some limitations: interference with maternal antibodies, application errors, mortality and consequently, incomplete bird immunization. To protect these birds, different vaccines have emerged, such as Marek vector-based vaccines (rHVT) and immune complex vaccines (Icx). The study was carried out in Tepatitlán de Morelos, region with highest layers population in Mexico. In this follow-up, the combination of two rHVT vaccines was documented, rHVT-F and rHVT-H7, against Newcastle Disease and H7 Avian Influenza, respectively and vaccination against Gumboro disease with the usage of immune-complex vaccine. The vaccine replication was evaluated using the RT-qPCR technique from samples of feather pulp and spleen. Specific PCR from bursa of Fabricius was performed to detect the SYZA26 vaccine strain. Individual samples were taken to obtain the percentage of positive birds. Subsequently, a comparative analysis was conducted to assess the performance data up to 42 weeks of age for three historical flocks. The analysis compared flocks vaccinated with r-HVT-IBD, live attenuated NDV vaccines and inactivated H7 AI vaccine to flocks that received rHVT-F, rHVT-H7 and a IBD immune-complex vaccine in the hatchery plus live attenuated NDV vaccine and inactivated H7 AI vaccine in the field (control group). The vaccine uptake results of the combination of the rHVT-F + rHVT-H7 vaccines in control group showed positivity according to standards at 5th week of age, demonstrating the ability of both vaccines to replicate correctly. Bursa sample showed 80% positivity to vaccine strain at 5th week of age in control group. Control group showed better performance with an improvement of -6.3% in cumulative mortality, 13.63 eggs more per hen housed on average and better uniformity. The study demonstrated that both rHVT (Vectormune ND and Vectormune H7) vaccines can be applied simultaneously in the hatchery in conjunction with the immune complex vaccine (Novamune) without causing negative interference and are a great alternative to overcome the issues with the conventional vaccination program for AI, NDV and IBD.

Key words: Vector Vaccine, Influenza, Immune-complex IBD, field results