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Protection against variant infectious bronchitis viruses: the use of heterologous live vaccines

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Infectious bronchitis virus (IBV) causes an economically important and highly contagious disease in chicken worldwide. The respiratory, renal and reproductive systems are mostly affected resulting in huge production losses. When conventional IBV live and inactivated vaccines are strategically used in an ‘evidence-based’ vaccination programme, a substantial protection against the disease and losses have been reported. These include use of live Massachusetts followed by variant vaccines (e.g. Dutch strain, 793B, Arkansas). This appears to induce higher and broader protection, and have been shown to be effective under the experimental and field conditions. However, infiltration of variant IBVs continue to occur and some known variant managed to spread further to new areas (e.g. IBV QX). This paper reviews the efficacy of live heterologous IBV vaccination programmes in providing protection against clinical signs, tracheal ciliostasis, pathological lesions and infection of various tissues (e.g. trachea, lungs, kidney and caecal tonsils). Results from four different experiments conducted in Liverpool, in addition to those done elsewhere, will be discussed.

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Protection and Immune Responses against Virulent Infectious Bronchitis Viruses in HVT-IBD Recombinant or IBD-Complex Vaccinated Broiler Chicks

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Vaccination against infectious bronchitis is broiler chicks are commonly practiced worldwide with the aims to reduce economic losses, enhance health, production and welfare of birds. These flocks are often vaccinated against different strains and strength of IBD vaccines. This paper compares the performance broiler chicks that were vaccinated with two different IBD vaccines, i) HVT-IBD recombinant, ii) IBD-complex. At hatchery, broiler chicks were divided to 3 groups. Blood and swabs were collected at day old. The first group were kept unvaccinated. The second and third groups were subcutaneously vaccinated with HVT-IBD recombinant or IBD-complex vaccine respectively. These chicks were kept in separately boxes and transferred to University of Liverpool experimental house. Here, the unvaccinated group kept as unvaccinated control group. The HVT-IBD recombinant group further divided to two groups and placed into two separate rooms. The same was done for the IBD-Complex group. One of each HVT-IBD recombinant and IBD-complex groups were vaccinated with IBV H1120 at day old and later with IBV CR88 at 13 days old. The other group from each of the IBV-vaccinated group remained as controls. At 7, 14, 21, 28, 35 and 42 days post vaccination, blood collected for sera (for IBD and IBV serology), 5 chicks from each group sacrificed to determine bursa:body weight ratio, also tissues of trachea, lungs, kidneys, caecal tonsil and rectum were collected for detection of IBV. In addition, bursa collected for histopathology. At 35 days post vaccination, 10 chicks from each group were challenged with virulent M41 or virulent IBV QX strain KG3P. Five days later, 5 chicks were euthanized for ciliary score and another 5 for collection of various tissues. These samples are being processed and findings will be discussed.