Evaluation vaccine efficacy for the control of shell less egg syndrome in chickens

Sabrina M. Buharideen[1], Mohamed S. H. Hassan[1], Dongyan Niu[1], Markus Czub[1], Susanth Gomis[1], and Mohamed Faizal Abdul-Careem[1]

[1]Faculty of Veterinary Medicine, University of Calgary, Health Research Innovation Center 2C53, 3330 Hospital Drive NW, Calgary, AB T2N 4N1, Canada
[2]Department of Pathology, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, SK S7N 5B5, Canada

Shell-less Egg Syndrome (SES) is one of the major problems in Western Canadian layer flocks and it is related to infectious bronchitis virus (IBV) infection. SES caused reduction in egg production and egg quality in the layers, limits the profit of poultry production. Vaccination has not been studied for the control SES in laying chickens although IBV vaccines are commonly used. The aim of the study is to establish a vaccination strategy to control SES. Two-weeks old specific pathogen free white leghorn layer chickens were divided randomly into 2 groups initially; vaccinated and control groups. The vaccinated group was vaccinated with infectious bronchitis (IB) live attenuated vaccine, Massachusetts (Mass) serotype at 3, 8 and 12 weeks of age. At the age of 5 weeks, chickens were vaccinated with live attenuated IB vaccine containing both Mass and Connecticut (Conn). Then at 14 weeks of age, vaccinated group was divided into two, one group was vaccinated with IB killed vaccine and other group was vaccinated with IB live attenuated vaccine containing Mass serotype. The control group was remained unvaccinated. Blood was collected at 3 weeks post vaccination of the last vaccine. Currently, the vaccinated and control chickens started laying and when they are at peak of lay, sub sets of each group will be infected with wild type (Mass) IBV isolate that is known to induce shell less egg syndrome maintaining uninfected control groups. Following the infection, the egg production and quality will be recorded. Cloacal and oropharyngeal swab samples, blood, reproductive tract washes and tissues will be collected at different time point of post-infection from the infected and control chickens to detect the viral load, immune response and histopathological changes. This is a work in progress.

Funding acknowledgement: Alberta Agriculture and Forestry and Egg Farmers of Alberta