


## AGROFOOD PRODUCTIVE: IMPORTANT INFECTIOUS POULTRY DISEASES IN MALAYSIA


| 28 NOVEMBER 2020 | 11.00AM – 1.00PM | ZOOM WEBINAR |

  
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**AGROFOOD PRODUCTIVE:**  
**IMPORTANT INFECTIOUS POULTRY DISEASES IN MALAYSIA**


**28 NOV 2020 (SATURDAY)**  
**11:00 AM - 1.00 PM**

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**OBJECTIVE**


- To discuss some important poultry diseases that require greater attention by the poultry farmers.
- Propose and discuss strategies and measures for the prevention and control of these infectious diseases.

**MODERATOR**  
  
**DR. YAP TEOW CHONG**  
Technical Consultant  
FLFAM

**SPEAKER**  
  
**PROFESSOR DATO' DR. MOHD HAIR BEJO**  
Professor, Department of Veterinary Pathology & Microbiology,  
Faculty of Veterinary Medicine, UPM

**SPEAKER**  
  
**PROFESSOR DR. ABDUL RAHMAN OMAR**  
Dean Faculty of Veterinary Medicine, UPM

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**Moderator:** Dr Yap Teow Chong, Technical Consultant, FLFAM

**Panel 1:** Prof Dato' Dr Mohd Hair Bejo, Professor, Department of Veterinary Pathology & Microbiology, UPM

**Panel 2:** Prof Dr Abdul Rahman Omar, Dean, Faculty of Veterinary Medicine, UPM

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## EXECUTIVE SUMMARY

This webinar looks at critical diseases that inflict serious injury and, in some cases,, mortality rate affecting poultry productivity over the years. Participants were also given insights on the factors contributing to criticality of these diseases and how they have evolved over the years risking deadlier outbreaks to poultry on regional or global scale. For each disease, panel members have also presented on the mitigation plan that consists of vaccination programme for birds and briefly touch the needs for effective biosecurity measures for a complete protection against diseases. Conversation during panel discussion session focuses on vaccines required for protection on both broilers and breeders flock apart from more information on diseases presented earlier.

### A. OPENING REMARKS

- Important poultry diseases. It is not new and have been around for decades.
- Some farmers have taken adequate precautions against these viruses. However, some diseases may not cause outbreak or mortality among flocks. but the issues would affect productivity. Hence, we need good control and prevention for these diseases which will be discussed at extent later in this session.
- The objectives of today's session are:
  - To discuss some important poultry diseases that require greater attention by the poultry farmers.
  - Propose and discuss strategies and measures for the prevention and control of these infectious diseases.
- We'll be talking about 3 important diseases that may not be covered extensively before.

### B. PAPER PRESENTATION

**Panel 1: Prof Dato' Dr Mohd Hair Bejo, Professor, Department of Veterinary Pathology & Microbiology, UPM**

#### **Paper 1:**

##### Key highlight of the presentation

- Fowl Adenovirus (FAdV) was first discovered in SEA region infecting broilers and layers in 2015.
- There are 3 group of FAdV namely Genus Aviadenovirus, Genus Siadenovirus & Genus Atadenovirus. All 3 genus are highly resistant to physical and chemical agent.
- FAdV is grouped into 5 molecular spcies and further classified in 12 serotypes.

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- Infected broilers and layers (progeny & DOC) will suffer increased mortality rate and retarded growth. Infection can occur horizontally and vertically. Vertical infection affects DOC and progeny while horizontal infection attack other broilers in the same area (farm).
  - Infection can be observed through clinical lesion or abnormal growth and histological lesion in select organs of infected broiler/ layers.
  - FAdV outbreak was first reported in Malaysia in 2005 affecting 34-day-old broilers. This increased mortality rate to 10% and retarded broilers growth. Clinical sign on vertical transmission manifested around 6-14 day- old and 21 - 35 day- old age for horizontal transmission. In layer chickens, infection occurs to 25 - 27 day- old chicken. Mortality rate increased to 2% with reduced feed consumption and eggs production.
  - Prevention for broilers and layers can be done through accurate diagnosis, vaccination, biosecurity and biosafety.
  - Highest antibody protection can be achieved through inactivated and live- attenuated vaccination periodically at critical period of broiler lifespan which avoid vertical and horizontal infection.
  - It is important to manage stress and hormonal changes in broilers to prevent activation of latent FAdV.

#### Key challenges

- n/a

#### Recommendation

- n/a

### **Paper 2:**

#### Key highlight of the presentation

- Infectious Bursal Disease Virus (IBDV), also known as Gumboro disease is a major threat to birds due to irreversible immunosuppression risk and high capability of mutation making it less susceptible to current and past vaccines.
- Global outbreaks have been reported before, with several strains that is unique between different part of the globe namely; Classic IBDV (CaIBDV), Very Virulent IBDV (VVIDBV) and Variant IBDV (vaIBDV).
- From the first outbreak detected in America, the virus has mutated rendering previous vaccine ineffective against the newer mutation. IBDV is highly contagious and very resistant to chemical and heat inactivation. This virus can survive in poultry house for up to 122 days.

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- This disease attack specific organ that plays critical role in a bird's immune system and in some cases permanently affecting the organ. Even though recent years has shown success in containing IBDV outbreak, there are still outbreak of other diseases, in part contributed by immunosuppression issue, which is a result from IBD infection.

#### Key challenges

- IBDV frequently undergone changes and evolutions increasing virulence and affects antigenity making current vaccines less effective.
- In cases where there are no fatalities affected on a bird, IBDV can cause irreversible immunosuppression, risking bird to infection and attack from other diseases.

#### Recommendation

- Accurate diagnosis to identify type of IBDV employs observation of clinical signs, gross and histological lesion on bird's organ on top of detection, isolation, identification and characterisation of the virus.
- Prevention and containment IBDV require extensive efforts from putting effective biosecurity measures in place, ensuring the quality of chick and discipline vaccination and monitoring programme apart from accurate diagnosis that employs various method to identify the virus and right treatment.

#### **Panel 2: Prof Dr Abdul Rahman Omar, Dean, Faculty of Veterinary Medicine, UPM**

#### Key highlight of the presentation

- Infectious Bronchitis Virus (IBV) is part of the coronavirus family, under the Gammacorona genus.
- Control and prevention of IBV is complex due to its genetic characteristics capable to mutate and evolve into new strains.
- IBV develop persistence towards existing vaccine through its capabilities to mutate or recombine forming new strain of virus that is immune to existing vaccine. This virus can be classified into 3 categories; mass, non-mass and variant strains. Some of the strains are present in various region with some are uniquely presence at specific region.
- IBV causes infection in infected birds organs such as respiratory organ, epithelial cell, reproductive organs reducing eggs quantity and quality and co-infection increasing the severity of infection.

- Diagnosis of IBV can be done through various methods such as PCR detection, virus isolation during acute infection phase and monitoring of organ health in suspected birds. However, identifying and verifying variant strains would require isolation in sentinel SPF birds.
- Malaysia has recorded first IBV cases in Malaysia in 1960s and mutated into various strains until 2018 with Malaysian variant recorded in 2018.
- Malaysian variant strain is a recombinant with parental strain of 4/91. Single vaccination of SPF DOC with mass or non- mass provide partial protection against Malaysian variant strains.
- Protein structure of various IBV strains differs in its structures hence immunity to certain strain may not provide immunity to other strains. Humoral immunity (local and systemic antibody) and cell-mediated immunity are vital for bird's protection from IBV.
- Live- attenuated and inactivated vaccination should be administer to long-lived birds while only live vaccines are used for broilers.
- There is no single vaccine that can provide full protection to all variant strains of IBV. Combination of vaccines are required to maximise cross- protection against infection from various strains of IBV.

#### Key challenges

- n/a

#### Recommendation

- n/a

### **C. PANEL DISCUSSION**

- Panel 1 says that serotype 8B from IBH causes gizzard erosion in broilers.
- Panel 1 mentions that limited studies were done on IBH prevalence in Malaysia. The first case occurs in 2008 follows by 2008 and 2017 - 2019. But the cases seem to be reducing for every outbreak; it was not as many as the earlier year.
- Panel 1 remarks that broiler chicken used was under experimental condition in getting the titer level reading. Research & Development activities with regards to vaccine development for FAdV have been successful. However, the result for attenuated vaccine development by different isolate has been inconsistent. Finding shows that inactivated vaccine has perform better than live-attenuated vaccine probably due to the isolate itself. He opines that controlling IBH is best done by proper vaccination programme to protect vertical infection to progeny and DOC.
- Panel 1 mentions that after 28 days vaccination, protection from disease in broiler is high well into 42 days. Current practice of vaccination has moved to hatchery/ day old phase.

- Panel 1 says that gizzard erosion and liver discolouration are part of FAdV symptoms. However, farmers should also consider other diseases that may cause similar symptom after lab test indicates absence of FAdV in sample tested.
- Panel 1 advises vaccination against FAdV is done for breeder flocks. In cases where this is not possible, a proper vaccination plan can be devised to protect the broilers. FAdV infection is common nowadays but the severity and persistence are reduced compared to the past.
- Panel 1 says that homogenous antibody is needed for cross protection against different variant of FAdV. Currently there is no single vaccine that can provide cross protection.
- Panel 1 remarks that vertical transmission of virus outbreak can be avoided by vaccinating breeder flock at 18 weeks. This will provide protection to the breeder flock during peak production period. Farmers can also opt for booster at 26 - 28 weeks to enhance protection.
- Panel 2 mentions that vaccination is recommended especially to those in the high- risks group. At this juncture, natural exposure may not provide good immunity against COVID19 threats. It is still too early to say if mRNA vaccine will be enough. He is comfortable with activated vaccine than mRNA vaccine.
- Panel 2 suggests that he is keen to pursue the idea of a centre of excellence in UPM that gather all the experts and authorities in exploring new ways of preventive protection mechanism for poultries. This should be a form of collaboration from relevant experts supported by the industry players and government. DMHB welcomes such collaboration and is open for discussion to look for such opportunities through suitable platforms.

#### **D. SUMMARY**

- 3 diseases were covered with each posing serious threat to birds and capable of vertical and horizontal infection.
- Panel 1 presented on Fowl AdenoVirus (FAdV) and Infectious Bursal Disease Virus (IBDV). FAdV affects growth of both layers and broilers and in some phases, cause mortality among flocks. FAdV could be detected through histological and gross lesion at affected organs. Optimal protection against FAdV could be achieved through combination of live-attenuated and inactivated vaccines administered at recommended interval. IBDV risks mortality among progeny, DOC and adult birds. In cases where birds survive the infection, it causes irreversible immunosuppression among infected birds. This affect birds' resistance against other health threat and affect productivity of farms. Protection against IBDV would require continuous research and development of vaccines for latest variants, complete multi vaccines administer to flocks for cross- protection and biosecurity and biosafety measures being put in place at farms.

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- Insights on Infectious Bronchitis Virus (IBV) was presented by Panel 2 during the third presentation. IBV is capable of mutating and recombining forming new variant that is potentially resistant to existing vaccines. Currently there are no single vaccines that can provide protection against all strains of IBV hence cross protection could be achieved through combination of vaccines for IBV administered to birds at recommended interval.