

AGROFOOD PRODUCTIVE: PUBLIC HEALTH CONCERNS IN POULTRY PRODUCTION

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Safura Abdul Malek
Pengurus AFPN/PGD



Moderator: Mr Terry Tan, President, FLFAM

Panel 1: Dr Rohaya Mohd Ali, Senior Assistant Director, Veterinary Public Health Division, Department of Veterinary Services

Panel 2: Dr Yap Teow Chong, Technical Consultant, FLFAM

Panel 3: Prof Dr Loh Teck Chwen, Deputy Director of Center of Industry Relations and Networks (CiRNet), Faculty of Agriculture, Universiti Putra Malaysia

Panel 4: Dr Tan Chee Kiang, Technical Consultant, FLFAM

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EXECUTIVE SUMMARY

- This webinar looks into health concerns surrounding poultry industry from the perspective of consumers and regulatory bodies.
- Subsequently, audience were presented with procedures to be adhered to in ensuring their products provides the highest assurance on quality and safety as stipulated by the regulatory bodies apart from improving productivity through alternative growth promoter usage in birds.
- Participation were also addressed on common myths pertinent among consumers and the fact corresponding to each myth.

A. **OPENING REMARKS**

- Today's session will be discussing on public health concerns especially on food safety, antimicrobial resistance and environmental problems. Panel members will also be discussing on the intervention measures for risk mitigation on these issues.
- Public health concerns attributed to poultry industry has been a point of contention for a long time. It involves various consideration and influenced by many factors, impact, values and operation procedures thus today's topic is important.
- Agro players will gained useful insights that could be utilised in their poultry operation.
- The objectives of today's session are:
 - To discuss the public health concerns especially on food safety, and antimicrobial resistance (AMR).
 - To discuss the intervention measures for risk mitigation on the public health issues.

B. **PAPER PRESENTATION**

Panel 1: Dr Rohaya Mohd Ali, Senior Assistant Director, Veterinary Public Health Division, Department of Veterinary Services

Highlights from the presentation

- Statistics from the MoH indicates that food poisoning cases in 2019 have been increasing by 3.2% from the previous year.
- Not all cases stemmed from poultry consumption, but there are risks of poisoning from consuming poultry products.
- Food safety are the conditions and practices that ensure quality of food are preserved to prevent contamination and food- borne illnesses. Food safety needs to be observed at every phase of supply chain to minimise or prevent risks to consumers.
- Regulators are responsible to educate consumers on any risks on consuming certain type of food, producers are responsible to ensure exposure to contaminants and substance in food produced are controlled and consumers are responsible to change their attitude towards food safety.

- Food hazards could be categorised into 3 elements; biological hazard which describes presence of bacteria, viruses and parasites, chemical hazard which addresses harmful chemical in foods and physical hazard that stems from foreign objects such as metal, glass or other items in produced foods.
- Biological hazard is measured through several organisms indicator namely Total Plate Count (TPC), Coliform, presence of E.Coli and Staphylococcus Aureus, each with standard limit that must not be exceeded.
- Food borne pathogen is another biological threat in food. Among few names are *Salmonella* spp., *Campylobacter* spp and *Listeria Monocytogen*. Some of these pathogens can be transmitted vertically and/ or horizontally. All food- borne pathogen are required to be absent in all food products.
- Veterinary banned drugs must not be used in food products hence residue from such substances are not allowed. Residue from approved drugs must be below Maximum Residual Limit (MRL), ideally as low as possible.
- Food safety regulation is governed by DVS and MOH. Industry practices is guided by protocol from DVS apart from international standards under the purview of CODEX, WHO, FAO and OIE respectively.
- Food safety monitoring is done through food sampling programme at Veterinary Public Health Laboratory located at Salak Tinggi. Any violation will be recorded followed by technical advice for corrective action to respective industry players.
- Veterinary Public Health (VPH) Index is a system for managing and reporting cases with the intent of coordinating and monitoring of hazards contamination and food-borne diseases from entering food chain through animal products. It is also meant to prevent and minimise associated illnesses and reduces drugs residue risk of approved and banned drugs and antibiotics.
- VPH Index are colour- coded to indicate status and actions required by all respective parties. Red code will be assigned in cases where violation occurred. Status will be changed to yellow once corrective measures have been taken and green code will be awarded by DVS to violators after the department is satisfied with the action taken and the outcome.
- Poultry industry players have been the major contributor to VPH index since 2016 with recorded cases increasing this year.
- Contamination by *Salmonella* has been fluctuating over the years while *Campylobacter* is steadily increasing. Residue from banned drugs in poultry has shown decreasing trends with no cases recorded since 2017.
- Poultry farmers and producers should comply to safety and hygiene requirement, birds' welfare, biosafety and biosecurity measures at facilities at all times to gain confidence from consumers.

Key challenges

- n/a

Recommendation

- n/a

Panel 2: Dr Yap Teow Chong, Technical Consultant, FLFAM

Highlights from the presentation

- Environmental concerns associated with poultry farming stems from reduction in available space for farming due rapid urbanisation in the vicinity of farms areas. In lights of increasing operation scale, products must be affordable with easy access to consumers. lack in government support for the industry add challenges to meeting demand within the constraint above.
- Problems from farms and hatcheries consist of the followings:
 - Pests from fly and rodents accessing the facilities
 - Hazardous and bad odour causes by chemical compound produced by birds
 - Emissions of debris and harmful substances.
 - Untreated solid waste from farm and hatchery.
 - Occupational health hazards to workers and discharge of pathogens to the environment and spread of AMR to humans.
- Issues associated from abattoir/ egg processing plant stems from poor management and operational practice involving by- products management, indiscriminate disposal, microbes discharge and occupational hazards to workers.
- Environment impact from poultry industry's activities ranges from nuisance and health hazards to surrounding population, destruction of surrounding natural habitat, degradation of water quality and occupational hazards.
- Farmers need to comply to Environmental Quality Regulations for wastewater discharge which is measured by several parameters ensuring wastewater discharge does not exceed the threshold. Legislations and regulations governing the poultry industry are under the purview of multiple government agencies such as MAFI, MOHA and MOH.
- Migration from open- sided house system to close- sided house system for poultry farming is a key mitigation action to minimise impact on environment. However, high cost hampers migration by farmers with limited financial capabilities. Another associated technical issue is the legal aspect of migration process.
- Farmers are encouraged to implement Quality Management System throughout poultry supply chain along with sustainable practices in their operation. Biosecurity and Biocontainment is capable of reducing disease, mortality and spread of pathogenic agents to the surrounding environment apart from resource recovery and waste management in farms and processing facilities.
- Sustainable Waste Management underline the preference on action taken for produced waste from least to most preferred; Dispose, treat, recover, recycle, reuse, reduce, avoid.
- Elements of Sustainable Waste Management that could be focused on:
 - Sourcing for optimised food formulation to improve flock health, reduce production of AMR bacteria through secretion and subsequently reduce birds' excretion and its impact to the environment.
 - A close- sided house system should be complimented with proper ventilation system, general housekeeping and refuse management to control odour and avoid/ minimise pests' infestation at farms which could be a vector to harmful diseases.
 - Managing hatchery waste encompasses the usage of maceration and composting instead of disposing the waste in landfills.

- Slaughterhouse waste entails wastewater from their operation. in larger slaughterhouse, they are capable of converting by-products into valuable commodities to not just minimise waste, but also generate revenues for the farms.

Key challenges

- n/a

Recommendation

- Government support in policies and legislation is required to encourage adoption of latest system and compliance to government regulations.

Panel 3: Prof Dr Loh Teck Chwen, Deputy Director of Center of Industry Relations and Networks (CiRNet), Faculty of Agriculture, Universiti Putra Malaysia

Highlights from the presentation

- Worldwide annual meat consumption has increased tremendously contributed by improving population income making broiler an affordable source of meat.
- Intensification of broiler production system supported by urbanisation and improved infrastructure is required.
- One of the key challenges in intensifying production is to promote animal health and growth performance. The solution lies in usage of feed additives.
- Antimicrobial Growth Promoter (AGP) is a range of antibiotics that also functions as growth promoter in birds proven by 60 years of utilisation in farms. However, farmers need to limit reliance on AGP as growth agent.
- Selection of alternative AGP should consider key criteria that has similar benefits as AGP in reducing incidence and severity of infections, decrease microbial use of nutrients, reduction of growth- depressing metabolites and improvement in bird's nutrients absorption.
- Alternative feed additives that could be considered are probiotic, postbiotic and prebiotic, Acidifiers, Phytogenic Compound and Bacteriophage among others.
- Probiotic cultures which are used in various industry is not multi-tasking. However, demand for new culture that is focusing on specific functionality are on the rise. Opting for probiotic poses several challenges such as cost consideration (storing facilities and special handling) and adverse effect on birds' health (gut inflammation, resistance to antibiotic).
- Postbiotics, an array of inhibitory metabolites is food supplement which promote healthier intestine. Postbiotics poses various benefits to bird such as improve growth performance, digestibility and immune response. Reduce faecal pH and improve meat quality.
- Paraprobiotics also known as ghost-probiotics is a non-viable microbial cells or crude cells extracts that possess benefits when administer in adequate amount.
- Prebiotics is a non-digestible supplement that stimulates certain or all non-pathogenic organisms in the gut. Prebiotics works by being the food for good microbes. Since prebiotics are not able to be consumed by harmful microbes, it inhibits growth of these pathogenic bacteria.
- Organic acids are short chain fatty acids & other carboxylic acids. It is administered to birds to inhibit growth of pathogen, improve nutrients utilisation and these resulted in better growth. Blends of organic acids in feed improved growth performance of birds.

- Phytobiotics are another feed additive that are derived from natural bioactive compound found in plants. Phytobiotics contain antibacterial properties, appetite stimulant and believed to contain antioxidant. However, source of phytobiotics which are herbs and plants are also consumed by human affect the cost of utilising phytobiotics in birds.
- Bacteriophage are viruses that attack pathogen and kills it. It is effective in reducing E. coli induced diarrhea. However, testing by DLTC founds that the result is not convincing.

Key challenges

- n/a

Recommendation

- Further researches are required to source for more substitute to AGP.

Panel 4: Dr Tan Chee Kiang, Technical Consultant, FLFAM

Highlights from the presentation

- Poultry is the most consumed source of protein for Malaysian. With that there are common beliefs about this meat among consumers which are myths.
- Both branded and non-branded chicken does not contain antibiotic except for therapeutic usage on chicken affected by diseases. Usage of antibiotic is strictly regulated by the government. "Antibiotic free" is a quality assurance the brand wants to be associated with.
- Chickens are not vegetarian. They are omnivores. Commercial feed may adopt vegetarian diet to reduce the risk of pathogen from animal-based raw materials.
- Chicken meat can be categorised into white and dark meat; white meat has lesser fat and higher protein content while dark meat is richer in nutrient. Both meats are equally nutritious with nutritional difference.
- Chicken skin is not an accurate measure on chicken's nutritional values; yellow skin in chicken is caused by pigment contained in chicken feed.
- Frozen chickens are equally nutritious with fresh chicken. Freezing process does not affect nutrients in poultry. Frozen meat is more hygienic than fresh chicken due to processes undergone that kill bacteria.
- Human cannot be infected with HPAI from consuming chicken. Cooking process kills these bacteria and any other virus. Infection from HPAI in human could occur through contact with infected bird, their faeces and body secretion. However, Malaysia is free from HPAI threat.
- White eggs are just as good as brown eggs. Colour of shell is due to the pigmentation during laying process. It is just preference of Asian communities for brown coloured eggs for aesthetics.
- Nutrition wise, Grade A eggs are equal to grades. Grading are meant to segregate eggs by weight. Eggs quality are measured by thickness of egg whites, round & high yolks, free from defect and cracks.
- Dark coloured yolks are just as good as light coloured yolks. Yolks colour stems from laying hen's diet. Carotenoids' pigment found in certain food are used in feed that contributes to the darker colour.
- Consuming eggs does not increase cholesterol level. Eggs are low in saturated fat and high in unsaturated fat (good fat). Eating eggs help prevent certain type of strokes. USFDA has debunked this myth.

- Eating both egg white and egg yolk. Both are good source of nutrition with different nutrient composition respectively.
- Kampung eggs are no more nutritious than commercial eggs. Free- range kampung chicken which lay kampung eggs may be infested with more disease agents than commercial eggs. The only nutritional difference comes from eggs laid by specially fortified hens through special diets.

Key challenges

- n/a

Recommendation

- n/a

C. PANEL DISCUSSION

- Panel 1 says that all the data will be obtained through annual national sampling programme. Not meeting AMR requirement may indicate misused of antibiotic among flocks. This leads to detection of MRL exceeding the limit stipulated.
- Panel 1 remarks that increment of VPH Index stems from failure to meet the standard indicator of microorganism in food. This shows the needs to improve hygienic and sanitation practices along the food chain.
- Panel 3 says that medium- chain fatty acid refers to C8 - C12. These acids produce good result on animal. There are efforts to produce Palm Kernel Oil that contains high amount of medium chain fatty acid that contain high inhibitor properties.
- Panel 4 mentions that definition and standards of organic chicken differs between countries. Malaysian standards prohibit usage of chemical on organic poultries. However, in some European countries, this also covers feed strictly sourced from organic materials.
- Panel 4 remarks that Malaysia does not have any real case of fake eggs. He put his confidence on Malaysian standards and enforcement to be capable of overcoming this threat. Malaysian consumption of poultry is among the highest in the world. We need to satisfy the taste bud of consumers with more room to grow along the supply chain from farm to ready-to-eat products.

D. SUMMARY OF THE SESSION

- This webinar manages to clear the air on the type of risks surrounding poultry farming the mitigation measure system employed by regulatory bodies together with clear demarcation on responsibility of each party.
- Intensification of production need to be achieved balancing with stricter regulations & standards. This calls for administration of alternative growth promoter as replacement to antibiotics in line with government requirements. Alternative growth promoter exhibits promising result with some of it showing proven track record of promoting growth without the risks of pathogen antibiotics resistance in birds.
- Research and findings have shown that myth persistent among consumers are baseless without any scientific backing.