Biosecurity model design for United Arab Emirates (UAE) poultry farms – avian influenza example

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Abstract

Poultry farms in United Arab Emirates face several biosecurity challenges including high cost of considering day-to-day biosecurity measures and risk of poultry diseases outbreaks. The objective of this research is to design a multidisciplinary biosecurity model for near future planned if-then scenarios analyses to guide decision making processes for the poultry farmers in UAE and their stakeholders. Such framework will enable poultry sector's stakeholders (government agencies, researchers, poultry non-government organizations, and poultry farmers) of building awareness on the possible outcomes of biosecurity measures and adaptations strategies. The model contains a preventive module to educate business owners and technical staff and monitor health status inside poultry farms. These strategies are described using an Avian Influenza disease hypothetical outbreak example and lessons learned from other countries responsiveness and readiness facing poultry's farmers due to the Avian Influenza disease outbreaks.

The example describes the poultry birds' population and production facilities and their spatial distribution in UAE Emirates, the Avian Influenza possible disease manifestation phases (e.g. latent period, infectious sub-clinical period, and infectious clinical period), disease transmission possible pathways (e.g. direct contact and indirect contact), and disease detection resource needs (e.g. material and supplies, testing equipment, laboratories facilities, veterinary medicine technical staffing, control hazmat teams, and public health officials) needed. This research describes surveillance and control tactical and strategic options and itemizes a list of resource requirements to implement such strategies. These tactical and strategic options include vaccination, quarantine infected areas, manage the potentially affected areas and control bird transportation to control the outbreak and depopulation. The framework design summaries required data parameters for day-tot-day biosecurity protection measures as well as outlines objectives and outcome of planning requirements to face the poultry industry biosecurity threats in UAE. This research beneficiaries include the decisions makers at the farm level (e.g. farms owners), academic research community including graduate students, and government policy makers in the country.