

## Disaster Prevention and Management of Poultry Production in the UAE

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### **Abstract**

*Agricultural production sectors represent a high-risk source of biological hazards. Facing disasters begins with preventing and reducing the risks. Huge investments are employed in poultry production to produce poultry products locally. On the other hand, zoonotic avian diseases, such as H1N5, are spreading around the world. A multidimensional system was developed to monitor the performance of poultry production farms, trace poultry products and associate the collected data with geographical information in GIS maps. The developed prototype consists of three major segments: flock identification system, website application and a GIS map. The first segment was designed to give a unique identification code to each flock produced locally in the United Arab Emirates, which was integrated into a poultry products identification system. The second segment was developed and hosted by UAE University servers (<http://farmbiosecurity.uaeu.ac.ae/>) to collect information from registered poultry farms on a daily basis. On the other hand, the collected information is stored on the server where it is used to develop a GIS map utilizing ArcGIS 10.1 Desktop which contains additional layers of information such as streets, villages, wind speed, and direction. The developed system was intended to help government authorities to predict and control epidemic outbreaks as an early warning system, manage biological disasters originating in poultry farms and handling food traceability crises. Each segment was examined on a pilot scale to assess its feasibility individually and in conjunction with the other segments. Preliminary results showed that the developed pilot system was very promising as an early warning mechanism to predict poultry-related epidemics and help the corresponding authorities to foresee the spread pattern of a problem according to the collected data and environmental conditions. On the other hand, authorities could allocate new production farms, live birds and litter transportation routes to minimize the possibility of initiating epidemic propagation. Furthermore, the food control authority could use the traceability system to handle biosafety food problems, and swiftly identify and isolate unsafe foodstuffs to prevent them from reaching the consumer. It was concluded that business owners were hesitant to apply such a system as, in their perception, it would place more of a burden on their staff. They were also cautious in revealing detailed information regarding their farm's environmental condition to control authorities, as it might mean investing more in biosecurity systems. It is recommended that this system is implemented by law to protect human health, the environment, and the economy.*

**Keywords:** poultry, biosecurity, outbreak, traceability, GIS.