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Vaccination and Surveillance for High Pathogenicity Avian Influenza in poultry: Current Situation and Perspectives

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Field Experience on HPAI Surveillance in Vaccinated Populations in Hong Kong

Since the first outbreak of high pathogenicity avian influenza (HPAI) viruses reported in Hong Kong in 1997, the Agriculture, Fisheries and Conservation Department (AFCD) has implemented a series of preventive and control measures to reduce the risk of AI outbreaks at the farm, import, wholesale and retail levels of the live poultry supply chain, including a mandatory AI vaccination programme against H5 AI viruses launched in 2003 for chickens in all local farms destined for live poultry markets. Since January 2018, in view of the continuous threat of H7N9 AI viruses in the region, the compulsory AI vaccination campaign has also been expanded to cover both H5 and H7 subtypes till now.

Over the years, AFCD has been continuously monitoring both genetic and antigenic changes of the circulating HPAI viruses, and conducting regular reviews in consultation with relevant experts and the Mainland China counterparts on the AI vaccines used in local chicken farms to ensure that the most up-to-date vaccines against AI infections are being used.

HPAI surveillance in vaccinated chickens in Hong Kong has been conducted aiming to ensure that chickens are free of H5/H7 AI viruses prior to chicken sale for human consumption. Passive surveillance, such as regular farm inspections and mandatory reporting of abnormal death of chickens by farmers, are in place for monitoring health status of chickens on farms. Sentinel chickens were also used and placed in-between the vaccinated flocks for early detection of AI virus incursions. In addition, active surveillance with HPAI testing on samples collected from live chickens, farm environment and dead birds etc. were in place. Acceptable AI testing results were the pre-requisites for approval of market sale of the chickens.

While the HPAI surveillance programme in Hong Kong is extensive, it may not be feasibly applicable in other places. First of all, it requires frequent official farm visits which may not be acceptable in other places with a high number of farms over a large geographical area. In addition, the Hong Kong SAR Government fully covers the cost of the AI surveillance activities which may not be affordable in other places with a much larger poultry production scale. Furthermore, the chickens produced from chicken farms in Hong Kong are solely supplied for local consumption that international trade is not a concern for AI vaccination in Hong Kong compared to other countries.

Being a major component of the HPAI surveillance programme in Hong Kong, the use of sentinel chickens in local chicken farms has previously been used in Hong Kong for 20 years, which had been critically reviewed in recent years. Taking into consideration of the technology advancement for diagnostic testing over the years and drawbacks of the use of sentinel chickens on farm nowadays, the use of sentinel chickens had been eventually ceased starting from October 2022 onwards with other complementary measures implemented.

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The need for H5/H7 AI vaccination in Hong Kong has been reviewed regularly over the years, and it is foreseen that H5/H7 AI vaccination would continue to be implemented in local chicken farms in the near future. The AFCD will continue to closely monitor the HPAI epidemiology in the region for timely update of the AI vaccines used on farm as appropriate with the ultimate goal to safeguard public health and food safety

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