

An Account of the First Farm Diagnosed with Highly Pathogenic Avian Influenza in British Columbia in February 2004

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Abstract: Highly pathogenic avian influenza (HPAI) is one of the four federally reportable poultry diseases in Canada. On February 16, 2004 the presence of avian influenza was confirmed by the British Columbia Ministry of Agriculture, Food and Fisheries-Animal Health Centre (BCMAFF-AHC) and the Canadian Food Inspection Agency (CFIA) was immediately notified. On February 19, 2004 the CFIA confirmed that the H7 hemagglutinin subtype of AI was the causative agent. Since global animal health authorities are planning to treat any H5 or H7 subtype of AI as a federally reportable disease, regardless of pathogenicity testing, the CFIA made the precedent-setting decision to quarantine and depopulate the farm in question based solely on the H7 subtype. HPAI has never been diagnosed in Canada.

Discussion: Over the past few years there has been heightened global concern over the economic impact of avian influenza viruses (AIV) on commercial poultry production and trade. Avian influenza viruses are subtyped based on one of fifteen hemagglutinin (H) and one of nine neuraminidase (N) surface glycoproteins. Outbreaks of AIV subtypes H5 and H7 are of specific concern due to the increased potential for these viruses to mutate to the highly pathogenic forms.

On February 7, 2004, the owner of a modern broiler breeder farm in Abbotsford, British Columbia, Canada noticed that his 51 week old flock of 9,000 broiler breeder chickens (Flock A) took double the normal time to consume the allotted amount of feed, as well as noted there was a slight increase in mortality. The adjacent flock of 9,000 24 week old broiler breeder chickens (Flock B) was clinically normal. The owner suspected an issue with a recently delivered load of feed and contacted his veterinarian who visited the farm on February 9, 2004. A sample of eight dead Flock A birds was submitted to the provincial veterinary diagnostic laboratory (BCMAFF-AHC) for further investigation. The suspect load of feed was

removed and immediately replaced with fresh feed. Mortality in flock A increased to 1.3 % and egg production dropped approximately 20 % over a period of 7 days. On February 13, 2004 the BCMAFF-AHC indicated a suspect AIV diagnosis by polymerase chain reaction (PCR) and the producer and referring veterinarian immediately implemented “self-quarantine” and enhanced biosecurity. From February 14, 2004 the mortality returned to normal levels and egg production recovered by 10%. Normal feed consumption resumed. Low pathogenic avian influenza (LPAI), subtype H7N3, was subsequently isolated from this barn.

On February 17, 2004 the younger flock B in the adjacent barn experienced a very sudden increase in mortality. In this flock of 9,000 birds the mortality increased from 4 birds per day to 96, then 930 and then the owner reported that mortality was too numerous to count.

On the first day of increased mortality samples of dead birds from Flock B were submitted for further investigation to the BCMAFF-AHC. Based on the gross pathology, the sudden extreme increase in mortality and the previous diagnosis of AIV in Flock A, a tentative diagnosis of highly pathogenic AI (HPAI) was made by the BCMAFF-AHC.

On February 18, 2004 the CFIA declared that the Federal Government was in control of this outbreak, the farm was placed under quarantine and provisions were made for the pre-emptive euthanasia and depopulation of the two flocks. The second flock would eventually yield highly pathogenic avian influenza (HPAI); which was a mutated form of the LPAI from the first barn (1).

Reference:

1. Bowes VA, Ritchie SJ, Byrne S, Sojonky K, Bidulka JJ, Robinson JH. Virus Characterization, Clinical Presentation and Pathology Associated With H7N3 Avian Influenza in British Columbia Broiler Breeder Chickens in 2004. Avian Diseases, 2004. In Press.