International Poultry Production

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Avian influenza IV

The clinical disease

Influenza infections in poultry can be asymptomatic, but they frequently cause production losses and a variety of clinical signs that can range from mild to severe in affected flocks.

The clinical picture correlates to avian influenza viruses that cause mucosal infection in the respiratory and/or enteric tracts and those which cause systemic infections.

The viruses that infect mucosal surfaces are often referred to as LPAI (Low Pathogenic Avian Influenza) and typically their infections are not associated with serious mortality. HPAI (High Pathogenic Avian Influenza) viruses are typically associated with high mortality and, historically, this was often referred to as fowl plague.

Although LPAI viruses can produce asymptomatic infections they are more often associated with respiratory infections that can range in severity from mild to severe. Depressed feed and water intakes are seen and in breeder or layer flocks egg production drops are often encountered. These can be severe with the flock never returning to full production. This picture is often seen in turkey breeder flocks infected by swine-like influenza viruses.

In large flocks LPAI infection can move slowly through the flock giving a small but persistent elevation in mortality. Alternatively, LPAI infections can cause high mortality, especially when associated with poor environmental management and secondary infections.

Very occasionally, LPAI causes specific lesions in internal organs.

Features of HPAI and LPAI viruses

HPAI viruses are restricted to the H5 and H7 subtypes. Most subtypes are LPAI viruses and it is only rarely that these mutate to HPAI viruses. It is thought that these HPAI viruses are derived from LPAI viruses that have been allowed to circulate in poultry for a long time.

For example, LPAI circulated for a few years in Pennsylvanian poultry flocks before the H5 outbreaks of 1983. Similar scenarios were seen with H5 in Mexico in 1994 and the H7 outbreak in Italy five years later.

The selection pressures required for LPAI viruses to change to HPAI viruses are not known but a critical part of this process is replication of the virus in gallinaceous birds, including chickens and turkeys.

HPAI viruses are not normally thought to be in the wild bird reservoir. However, on a few occasions they have been detected, for example in a disease outbreak in terns in South Africa in 1961. Three widespread outbreaks of H5N1 in wild birds were seen over the last decade – all were linked to poultry.