



AgroLogic

Arm & Hammer

Biopoint

Boehringer Ingelheim

DACS

Delacon

Dupont

Hyline

Interheat

LUBING

Norel

Pathobiology

When ducks are infected by most avian influenza viruses, including HPAI viruses, only subclinical or very mild disease develops. However, some Asian HPAI H5N1 viruses replicate systemically and cause severe disease and mortality. Quite recently, an H5N8 which was closely related to an H5N1 also caused disease with mortality.

Both sick and infected asymptomatic ducks shed large numbers of avian influenza viruses.

Avian influenza viruses are highly host adapted. Usually on infection these viruses replicate in the epithelial cells of the gastrointestinal tract of wild waterfowl and produce subclinical infections. Occasionally the virus is transmitted from the wild waterfowl to domestic poultry where they produce subclinical infections or clinical infections that are characterised by respiratory signs and, in layers, egg drops. These are normally LPAI viruses. There are a few H5 and H7 LPAI viruses which, after circulating in poultry, have mutated to create HPAI viruses. These HPAI viruses induce a severe systemic disease with inflammation and necrosis in the skin, viscera and brains of chickens and ducks.

The clinical manifestation of avian influenza infection in the field is influenced by many factors including virus strain, host species and age, host gender, concurrent infections, acquired immunity and environmental factors.

There are four possible outcomes following exposure – no infection, asymptomatic infection, mild disease or severe disease with deaths.

When HPAI viruses jump from waterfowl to poultry the virus changes to a more respiratory tropic strain.

Genetic determination of virulence

The virulence of a virus is its ability to cause disease and it is determined by the virus' ability to grow, be invasive, infect susceptible cells, evade the immune system and be able to cause cellular damage.

These abilities are encoded in the viral genome by individual virulence genes. The pathogenicity of avian influenza viruses is a polygenic trait that affects host and tissue tropism, replication efficacy and immune evasion mechanisms.

Novation

Olmix

Vostermans

Nuscience

Vencomatic

Ziggity