International Poultry Production

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Infectious laryngotracheitis

Introduction

Infectious laryngotracheitis (commonly known as ILT) is a viral respiratory disease of chickens centred on the trachea. ILT can cause serious production losses due to a combination of mortality and depressed egg production. This disease can manifest itself in a variety of forms ranging from severe to mild with the latter being increasingly encountered in developed poultry industries and appearing as a mucoid tracheitis, sinusitis and conjunctivitis coupled to unthriftiness and low mortality.

The economic impact of ILT is serious but there is no evidence to suggest ILT can be transmitted to man.

History

ILT was first formally described in the mid 1920s but was probably around earlier than this date. It was also known as avian diphtheria with the name infectious laryngotracheitis being adopted in 1931. Shortly after this, in 1934, a method of immunising chickens based on applying a virulent virus to the cloaca was developed. ILT was the first major poultry disease for which an effective vaccine was developed.

Aetiology

ILT is caused by a herpesvirus belonging to the alphaherpesviruses but ILT is genetically distinct from other alphaherpesviruses. When viewed in infected cell culture the virus shows typical herpesvirus morphological characteristics.

The virus initiates infection by attachment to cell receptors and then penetrates the cell by fusion of the envelope of the virus with the host cell's membrane before releasing its nucleocapsid into the cell's cytoplasm where the viral DNA is released and then proceeds to the cell's nucleus. Here transcription and replication of viral DNA occurs and this ultimately forms new virus particles.

ILT virus infectivity can survive for several months when the virus is stored at 4°C but can be rapidly lost by heating, for example 38°C for two days. Disinfectants quickly inactivate ILT virus.

The ILT virus appears to be antigenically homogenous although some minor antigenic variation may occur as is suggested by the fact that some strains are poorly neutralised by heterologous antisera in some laboratory tests.

Pathogenicity

As was already mentioned, ILT virus strains vary in pathogenicity with highly virulent strains producing high morbidity and mortality and strains of low virulence producing mild or non-apparent infections.

Epidemiology

ILT has been seen in many countries and is a serious disease, especially when large numbers of susceptible chickens are present in an area. In such areas ILT is usually controlled in table egg layers, which are invariably on large multi-age sites, by the use of live modified vaccines.

The disease can occur in broilers but vaccination is not usually practical because of the relatively short life of this kind of poultry. The role of backyard flocks in maintaining persistent endemic infections should not be underestimated.

Recently vector vaccine technology has had significant success in ILT control.

The natural entry for ILT into the chicken is the upper respiratory tract. The easiest means of transmission is directly from infected birds although recovered carrier birds can be a source of infection. Mechanical fomites such as contaminated litter or equipment can carry the disease into susceptible flocks.

Transmission via the egg has not been shown to occur.