



AgroLogic

CID Lines

Dupont/Danisco

Hyline

Interheat

Pancosma

Thermo

Ziggity

## Introduction

*Mycoplasma gallisepticum* infections are commonly called 'chronic respiratory disease' (CRD) or 'infectious sinusitis' in turkeys as the disease is characterised by inflammation and swelling of the infra-orbital sinuses on the turkey's face.

In both chickens and turkeys this disease is characterised by respiratory rales, coughing, 'snicking', nasal discharge and conjunctivitis. However, if the disease is complicated by concurrent diseases such as infectious bronchitis, Newcastle disease, avian pneumovirus infection or colisepticaemia the clinical and pathological picture is more severe.

Losses from *M. gallisepticum* infection occur both on the farm and in the processing plant where condemnations are elevated. In laying birds egg production is often adversely affected. Overall, this disease has serious commercial impact, in fact it can be one of the costliest diseases for the poultry producer.

## History

The disease was first reported and recorded in England in 1905 when it was called 'epizootic pneumonia'. In 1938 the Americans gave the name of infectious sinusitis to the disease in turkeys. In 1935 the causal organism was first detected and in 1943 it was first cultivated in embryos from chickens with CRD and turkeys with infectious sinusitis. At this time it was suggested that the causal agent was probably a mycoplasma.

## Aetiology

*M. gallisepticum* is an avian mycoplasma. The designation of *M. gallisepticum* was made in 1960. *M. gallisepticum* can be observed by microscopy as a coccoid organism. A number of strains of *M. gallisepticum* are known.

*M. gallisepticum* culture in the laboratory requires complicated media and usually involves a broth stage followed by plating on to a specialised agar. Colonies have a 'fried egg' or 'nipple' appearance and are very small (diameter of 0.2-0.3mm).

Most common disinfectants are effective against *M. gallisepticum*. *M. gallisepticum* can be inactivated by heat treatment and the heating of hatching eggs has been used in the control of the vertical transmission of this infection. However, the temperature has to be very carefully managed as the difference between the temperature that will kill *M. gallisepticum* and that which will kill embryos is very small.

## Distribution

*M. gallisepticum* is found globally and has caused major problems in chicken and turkey flocks. Over the last half century the incidence of *M. gallisepticum* infection has declined in North America and many European countries.

*M. gallisepticum* is endemic on many large multi-age table egg units. There is increasing evidence that free range and village chicken form an important reservoir for this micro-organism.

In the mid 1990s *M. gallisepticum* was identified as the cause of conjunctivitis in wild finches in North America. Interestingly, it was found that these finches could infect a poultry flock if they got

into the poultry house but if they remained outside, even if only wire netting separated the finches from the poultry, infection normally did not pass to the poultry.

In addition to causing disease in chickens and turkeys, *M. gallisepticum* has been known to cause naturally occurring infections in pheasants, partridges, peafowl and quail and has been isolated from ducks, geese, parrots and flamingos. *M. gallisepticum* can infect birds of any age but young birds are more resistant to infection.

## Transmission

Bird to bird or horizontal transmission of *M. gallisepticum* occurs by direct or indirect routes although *M. gallisepticum* does not survive for too long outside the host. Typically aerosol infection enters via the upper respiratory tract or conjunctiva.

*M. gallisepticum* can be transmitted by fomites and so the key to keeping flocks free of *M. gallisepticum* infection is good biosecurity.

Transmission through the egg to progeny (vertical transmission) occurs and the highest transmission rates coincide with the peak of infection in the breeder flock. In chronic infections vertical transmission occurs at much lower rates.

Ideally serological screening of breeder flocks should be at intervals less than their incubation cycle (fortnightly for chickens and every three weeks for turkeys). This enables the consequences of vertical transmission to be managed and minimised.

## Incubation period

The incubation period varies from six days to three weeks. The manifestation of clinical signs, especially in turkeys, is dependent on several factors including strain virulence, concomitant infections and stress. Disease often appears close to the onset of lay.

In older birds the onset of a positive serological picture may precede the onset of clinical signs.