Fading Ostrich Syndrome

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Introduction

In early 1995 ostrich farmers and veterinarians began to notice higher than normal mortality rates in ostrich chicks. Initially the problem appeared to be in the 4 - 9 week age group but as it progressed, birds up to 12 - 16 weeks began to be affected. On some properties mortality rates reached 80%. Most properties however experienced mortalities in the vicinity of 50%. In a fledgling industry this quickly became the major problem confronting producers.

Clinical signs

The initial symptom was inappetence, followed quickly by weight loss or failure to thrive. Many chicks died without any further signs. Those that lived past this stage often developed green urates. Some chicks developed a gaseous bloat. Tube feeding saved many chicks, although many still continued to die, often weeks after showing initial signs.

Post Mortem examination

Early in the `outbreak', a fatty liver was a common presentation, combined with a proventriculus impacted with grass. Later, multifocal areas of hepatic necrosis (with/without bacteria present) were seen regularly. In some parts of the country enteritis was seen regularly, but was rarely observed in Queensland. Ascites was commonly seen, usually associated with a hypoproteinaemia.

Laboratory findings

Anaemia and hypoproteinaemia were common, but no consistent bacteriology results were obtained. Many birds cultured no or little bacteria, others cultured for *E. coli*, *Pseudomonas* spp, *Klebsiella* spp and *Serratia* spp. On several properties cryptosporidia was found, and in one case *Hexamita*-like protozoa were found. In Victoria coronavirus was found, and a mild panic ensued when a paramyxovirus was isolated from seven properties, but was later found to be a lentogenic strain, common in Australian wild birds. In one study Vitamin E levels were found to be marginal or absent. This may have been due to inappetence.

Feed investigations

One farm reported the onset of the problem coincided with a new batch of pelleted feed, and the manufacturer undertook to conduct an analysis of the feed, along with an independent trial. No mycotoxins were found, nor were any insecticides or other contaminants. Nutrient levels were consistent with the manufacturer's label.

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Discussion

The variety of clinical signs and laboratory findings appear to indicate a primary immunosuppression, with death resulting from secondary complications. The age group affected is consistent with the decline of passive maternal immunity via the yolk. Discussion currently revolves around whether this immunosuppression is due to a viral infection, nutritional deficiencies, management, or a combination of any of the above.

This problem has also been seen in the United States and Africa. No answer has been found there either, although the American thinking swings towards a virus been involved. perhaps Infectious Bursal Disease Virus.

The onset of Fading Ostrich Syndrome in Australia appears to coincide with the importation of eggs from Africa, and live birds from Canada. The African eggs were incubated and hatched in the Cocos-Keeling Islands, and both African chicks and Canadian adults were quarantined there. Poor management resulted in the deaths of many of the chicks, and there is anecdotal evidence that the chicks may have been fed Canadian birds' droppings in an attempt to produce normal intestinal flora. The potential for a previously unrecognised virus to be introduced via this means is obvious. However, epidemiological studies in Australia have yet to demonstrate whether the pattern of this outbreak is consistent with an infectious agent.

Viral isolation studies, using ostrich embryo cell lines, have yet to produce a likely pathogen, although enteric viruses are notoriously difficult to culture and isolate.

With the number of chicks being bred declining over winter, the number of deaths has declined. As an subjective finding though, the author has noticed that many chicks are under-sized for their age, often on properties that did not report heavy mortalities. This may reflect management or nutritional problems. There is currently insufficient data available on ostrich nutritional requirements, and most manufacturers use turkey or game bird premixes.

Subtle nutritional deficiencies may exist.

In summary then, the Fading Ostrich Syndrome appears to be a primary immunosuppression, of an unknown aetiology. The ostrich community - both farmers and veterinarians - are looking to the next breeding season with some trepidation as to whether the Syndrome will be back with a vengeance.