International Poultry Production's
Poultryhealth BYTES
YOUR OWN REFERENCE SOURCE ON POULTRY HEALTH

049 – Avian malaria

Introduction

Avian malaria is caused by blood borne protozoal blood parasites of the genus Plasmodium. All species of Plasmodium are transmitted by mosquitoes. Some 65 species of Plasmodium are known and these have been found in over 1,000 different types of birds. When it comes to poultry, species pathogenic for chickens are mainly found in Asia, Africa and South America.

Penguins are extremely susceptible to Plasmodium infection.

The parasite

Plasmodium gallinaceum is found in chickens, P. juxtanucleare in hens and turkeys, P. lophurae in pheasants, P. fallax in guineafowls and P. hermani can infect chickens, turkeys and quail.

The Plasmodium parasite develops in culicine mosquitoes when gametocytes of the parasites are taken up with a blood meal. Following this gametes, oocysts and then sporozoites are formed before infective sporozoites invade the bird's reticuloendothelial system and then cryptozoites and then metacrytptozoites are formed. The metacrytptozoites then produce merozoites which are released into the blood system and invade erythrocytes (red blood cells). This cycle may then repeat itself.

Pathogenesis

Destruction of erythrocytes results in anaemia which can be severe and induce hypoxia and mortality. In severe outbreaks mortality can be 90%.

Other consequences can occur such as the occlusion of brain capillaries resulting in death due to central nervous system failure. Splenomegaly and nephritis occasionally occur.

Treatment

To control this disease the lifecycle of the parasite must be broken and this can be achieved by eradicating the mosquitoes or separating the birds from the mosquitoes by placing them in suitable housing.

The value of a variety of treatments is limited and a combination of sulphachloropyrazine and sulphamonomethoxine has been used with some success.

Halfuginone has a potential role in preventive programmes but the best approach is to separate your poultry from the Plasmodium carrying mosquitoes.