Supporting text document

ENDOPARASITES OF POULTRY – HELMINTHS

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Introduction

Parasitic diseases play a significant role in backyard and commercial poultry flocks. Floor and free-range operations are more commonly affected, although caged flocks can also experience serious problems. The number and type of parasite species involved is greatly influenced by the epidemiological relationship between the parasite and its host/s. Overall, parasitic diseases can result in significant economic losses, in terms of poor birds' performance, and negatively affect animal welfare.

Helminths (from the Greek *hélmins -inthos*, meaning worm) are multicellular organisms that can be found either as free-living forms in the environment or as endoparasites of avian and mammalian species. The species considered of importance for poultry are classified into two major Phyla: 1) Nemathelminthes, also known as roundworms, and 2) Platyhelminthes, commonly referred to as flatworms. In addition, very few species belonging to the Phylum Acanthocephala, also known as thorny-headed worms, have been identified in domestic poultry in the United States. However, the majority of these cases has been considered accidental infections or incidental necropsy findings.

Etiology

The species associated with clinical disease and economic losses in poultry are included in 3 main classes, which are listed in order of importance:

1. Class Nematoda, phylum Nemathelminthes.

Nematodes are characterized by a spindle-shape body, limited by a chitinous cuticle. They have a complete digestive tract and sexes in different individuals. Some nematodes can be difficult to see by naked eye (*Capillaria* spp.), and others can reach several cm in length (*Ascaridia* spp.). In the majority of cases, males and females can be differentiated based on their size (females are longer than males) and the presence of specialized copulatory organs, located at the posterior end of the body (spicules in males and vulva in females). However, there are few exceptions characterized by a significant sexual dimorphism (*Tetrameres, Syngamus* spp.). At least 50% of nematodes has a short and direct life cycle. The other 50% has an indirect life cycle, involving one or more intermediate hosts (earthworms, grasshoppers, slugs, fish, crustaceans etc.) and a final bird host.

The digestive and respiratory systems represent the two main targets of nematodes.