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Popular Article

Internal Parasites in Poultry

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Abstract

A parasite is an organism that lives in or on another organism (referred to as the host) and gains an advantage at the expense of that organism. The two types of internal parasites that affect poultry are worms and protozoa. Usually, low levels of infestation do not cause a problem and can be left untreated. Clinical signs of a parasite infestation include unthriftiness, poor growth and feed conversion, decreased egg production and in severe cases death. Parasites can also make a flock more susceptible to diseases or worsen a current disease condition.

Introduction

Round worms

Roundworms (nematodes) are common in poultry, waterfowl and wild birds. Species of round worms that affect poultry include large roundworms (*Ascaris* spp., also known as ascarids), species of small roundworms (*Capillaria* spp., also known as capillary worms or threadworms), and cecal worms (*Heterakis gallinarum*). Roundworms can cause significant damage to the organs they infest. Most roundworms affect the digestive tract; others affect the trachea (windpipe) or eyes (Tellez *et al.*, 2012).

Large roundworms are the most damaging of the worms common to backyard flocks. A severe infestation can cause a reduction in nutrient absorption, intestinal blockage and death. Easily seen with the naked eye, large roundworms are about the thickness of a pencil lead and grow to 4-5 inches long. Occasionally, they migrate up a hen's reproductive tract and become included in a developing egg. The life cycle of a round worm is direct; that is, worm eggs are passed in the



droppings of infected birds and then directly to birds that consume contaminated feed, water, or feces. Also, worm eggs may be picked up by snails, slugs, earthworms, grasshoppers, beetles, cockroaches, earwigs, and other insects. Known as intermediate hosts, these insects carry the eggs and when eaten by a bird pass the eggs to the bird. Identifying and minimizing the number of intermediate hosts that poultry have contact with helps prevent the birds from being infected with worms. Medication containing the active ingredient piperazine is available for use against large roundworms in poultry but is not effective against other internal parasites of poultry.

Small round worms can affect the different parts of birds and cause a variety of symptoms. Species that infect the crop and esophagus cause thickening and inflammation of the mucus membranes located there. Turkeys and game birds are most commonly affected by such species, and producers can suffer severe losses due to these parasites. Other species of small roundworms are found in the lower intestinal tract and cause inflammation, hemorrhage, and erosion of the intestinal lining. Heavy infestations result in reduced growth, reduced egg production, and reduced fertility. Severe infestations can lead to death. If present in large numbers, these worms can be seen during necropsy (examination after death). Small roundworm eggs are very small and difficult to see in bird droppings without a microscope. Medications that contain levamisole are effective in treating small round worms.

Cecal worms are commonly found in chickens. As the name implies, they grow in the ceca (two blind pouches at the junction of the small and large intestines). Although cecal worms typically do not affect chickens, the worms can carry *Histomonas meleagridis*, a species of protozoan parasite that causes histomoniasis (blackhead) in turkeys. Turkeys can contract histomoniasis by eating chicken manure containing infected cecal worm eggs or earthworms that have ingested infected cecal worm eggs. So, although chickens generally are immune to problems caused by cecal worms, controlling the worms is still important for turkey health. Levamisole is effective in controlling cecal worms (Kassem *et al.*, 2021)

Tapeworms

Several species of **tapeworms** (cestodes) affect poultry. They range in size from very small (not visible to the naked eye) to more than 12 inches long. Tapeworms are made up of multiple flat sections. The sections are shed in groups of two or three daily. Each section of tapeworm contains hundreds of eggs, and each tapeworm is capable of shedding millions of eggs in its lifetime. Each



species of tapeworm attaches to a different section of the digestive tract. A tapeworm attaches itself by using four pairs of suckers located on its head. Most tapeworms are host specific, with chicken tapeworms affecting only chickens, and so on. Tapeworms require an intermediate host to complete their life cycle. These intermediate hosts include ants, beetles, houseflies, slugs, snails, earthworms and termites. For birds kept in cages, the most likely host is the housefly. For those raised on litter, intermediate hosts include termites and beetles. For free-range birds, snails and earthworms can serve as intermediate hosts, so controlling the intermediate hosts of tapeworms is vital in preventing initial infections and reducing the risk of reinfection.

Protozoa

Protozoa are single-celled organisms found in most habitats, and they include some parasitic pathogens of humans and domestic animals. Protozoan parasites that are important to backyard poultry growers are coccidia (species of the *Eimeria* genus), cryptosporidia (*Cryptosporidium baileyi*) and histomonads (*H. meleagridis*). By far, the most common protozoan parasites of chickens and turkeys are **coccidia**. Nine species of coccidia affect chickens, and seven affect turkeys. Coccidia are species-specific, meaning that coccidia that affect chickens, for example, do not affect turkeys or other livestock. Coccidia live and reproduce in the digestive tract, where they cause tissue damage. This damage reduces nutrient and fluid absorption and causes diarrhea and blood loss (Agriculture Victoria, 2011).

Coccidiosis (infection with or disease caused by coccidia) can increase a bird's susceptibility to other important poultry diseases, such as necrotic enteritis. Coccidia are in nearly all poultry. Chicks develop immunity to coccidiosis over time, with most severe cases occurring when chicks are three to six weeks old. Signs of coccidiosis include bloody diarrhea, watery diarrhea, abnormal feces, weight loss, lethargy, ruffled feathers and other signs of poor health. Most store-bought feeds contain medication that controls but does not eliminate coccidia. Eating such feed allows young birds to develop resistance to the coccidia prevalent in their environment. However, if the birds are exposed to a different species of coccidia, they will not have immunity, and disease symptoms may result. A common medication for controlling coccidiosis in birds not fed medicated feed is amprolium. As mentioned above, following the instructions for administration is important for proper drug delivery and bird recovery. Vaccines are currently available that give newly hatched birds a small amount of



exposure to coccidia, allowing them to develop immunity without developing the disease. With proper vaccination and management, routine anticoccidial medications are not necessary.

Cryptosporidiosis is infection with or disease caused by **crypto sporidia**. Crypto sporidia are not specific to chickens and can infect other birds and even mammals. Crypto sporidia frequently spread from flock to flock on the feet of animals and people and can be carried by wild birds. Intestinal cryptosporidiosis is common, and symptoms are usually mild. Frequently, the only symptom is pale skin in yellow-skinned breeds. Cryptosporidiosis also can be contracted by inhalation, resulting in a respiratory infection that is more severe than the intestinal form. There is no treatment for this form of cryptosporidiosis. Providing supportive therapy and guarding against secondary infection are the only courses of action. Once recovered, birds are immune to future infection.

As mentioned previously, **histomoniasis** is a disease of turkeys caused by **histomonads**, protozoan parasites carried by cecal worms. Histomoniasis is a serious, even deadly disease and is most common in range-raised birds. Turkeys raised with access to chicken fecal material or earthworms that have ingested cecal worm eggs pick up histomonads and develop the disease. There is no effective treatment for histomoniasis. The only effective control is to control cecal worms, thereby reducing the spread of histomonads. Also, you should not house or range turkeys with chickens or in areas where chickens recently have been.

Prevention Of Parasitic Infection in Poultry

- Infection with all internal parasites in poultry can be controlled by keeping birds in clean conditions and stopping them wandering around free.
- Cages and houses should be kept clean with droppings removed every week.
- Feed and water containers should be cleaned out every day.
- Do not allow wet muddy areas to develop around water containers or anywhere else.
- Cages and houses should be thoroughly cleaned before new birds are placed in them.
- Do not keep birds on the same area of ground year after year as contamination of the soil will increase.
- Purchase chickens as newborn chicks. If you purchase adult birds, quarantine them for a minimum of two weeks to monitor their health and assess for potential disease and parasite symptoms.



- Do not place young birds, especially under 3 months old, in runs where older birds have recently been kept as they may develop infection with coccidian
- One sick bird can infect the rest of the flock simply by contaminating the waterers. Test and sanitize the water, and keep waterers and feeders cleaned to help control or reduce the chance of spreading infection.
- Provide regular deworm protocols in all the birds to control the parasitic infection
- Use all-natural supplement to help breakdown the natural defenses of intestinal worms and their eggs. This makes parasites more susceptible to attack by the bird's immune system, stomach acids and bacteria in the gut.

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