

Internal Parasites (Worms) of Poultry

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Worms of poultry may be broadly divided into roundworms and tapeworms. They live in the digestive tract and spread from bird to bird via eggs passed out in droppings. The eggs of some roundworms are picked up directly by birds but the eggs of other roundworms and the eggs of tapeworms must be eaten by an intermediate host for the life cycle to be completed. The bird ingests the parasite when it eats this host. The eggs of some roundworms remain viable for some months in a damp shaded environment but are killed in a few hours on hot, dry soil or in direct sunlight. When large numbers of birds are housed in a relatively small area and there is constant contact with droppings internal parasites can spread quickly through a flock and build up to heavy infestations.

Small numbers of round worms can be tolerated by poultry without an adverse effect on the bird's health but a large burden can affect health and production by consuming nutrients that would otherwise be available to the bird, by irritating the gut lining, by lowering the bird's resistance to other diseases and by transmitting other diseases. They can cause serious debilitation and will compound nutritional or other health problems.

Tapeworms may have little effect on a well nourished bird, but do compete for food when present in large numbers. One of them, *Raillietina* sp, which is common in the Territory will cause lesions in the bowel and lead to ill health. Tapeworms may exacerbate other problems.

SYMPTOMS OF WORM INFESTATION

Young birds are most commonly affected and the presence of worms may be indicated by some of the following symptoms:

- poor growth or decreased egg production.
- loss of appetite.



- emaciation, weakness, ruffled appearance, drooping wings.
- diarrhoea, sometimes bloodstained.
- anaemia (indicated by a pale comb).
- in extreme cases death.

Post mortem examination of an affected bird will reveal worms in the caecum or intestines or the lesions of tapeworms.

CONTROL OF WORMS

Worms may become a problem in conditions of overcrowding and inadequate nutrition, particularly a deficiency of vitamin A which will make birds more susceptible. The best defence against worms is good management and good diet.

When worms are present the most efficient way to control them is to break the life cycle in some way and so prevent constant reinfestation. Since worm eggs are either ingested by birds directly or via an intermediate host infestation can be significantly reduced by preventing contact between birds and droppings for example keeping them on wire.

A rotational system of poultry runs will reduce the number of viable eggs in the soil, few will remain viable if the run is left vacant for 8 months.

Once a year, or after a heavy worm infestation, the birds should be removed from the run and the ground covered with quicklime at a rate of 0.5 kg per square meter. After three weeks the whole run should be dug over to ensure that the worm eggs are killed.

It is important to introduce young birds onto clean ground that has not been used recently by older birds. Young birds have little resistance to worms and will quickly become infected with the worm eggs dropped by older birds.

In the shed and run make sure that there are no damp, dark patches that will provide an environment for worm eggs to survive and become infective. Areas around water troughs present a particular risk.

Wild birds may introduce worms into a previously clean pen and must be excluded if complete control of worms is to be achieved.

It may be difficult to prevent birds having contact with the intermediate hosts of tapeworms but removal of breeding places for house flies will help. Remember when spraying for flies, ants or termites that the insecticides used may be taken in by the birds and cause poisoning or residue problems in eggs and meat.

TYPES OF WORMS

Worms found in poultry in the Territory are:

(a) Large Roundworm (*Ascaridia galli*)

This worm may infect turkeys and ducks as well as fowls.

It is a white worm 5-12 cm long and can be seen in the small intestine.

Life cycle: The adult worm lives in the intestine and eggs are passed out in the droppings. If the eggs are dropped onto dark damp and warm soil they can become infective after 8 days. The infective eggs are then picked up by other hens and hatch in the intestine. After about 4 weeks the worms are capable of producing eggs.

In suitable conditions, the eggs may remain infective in the soil for up to 4 months. These conditions are found in the wet season when the soil is constantly damp and warm, and the sunlight level is low.

(b) The Caecal Worm (*Heterakis gallinarum*)

This is a small worm, 0.7-1.5 cm long which lives in the caecum (blind gut). The caecal worm must be present in large numbers before a detrimental effect on the bird is noticed.

The caecal worm can harbour the organism which causes the protozoan disease "blackhead". Hens have some resistance to blackhead but turkeys are very susceptible. Hence turkeys that are running with hens can suddenly become infected with the disease while the hens are apparently free of symptoms. However blackhead has been seen in hens in the Territory.

Life cycle: As in the case of the large roundworm eggs are passed out with the droppings and in the ideal environment take 2 weeks to become infective. They are eaten by the bird directly or by eating earthworms which have taken them in.

(c) Hair Worms (*Capillaria* spp.)

These are long thread-like worms found in the crop, esophagus, small intestine and caecum. Eggs are passed out in the droppings.

Life Cycle: The eggs must be ingested first by an intermediate host such as an earthworm in which further development takes place. The life cycle is completed when the bird eats the earthworm and the parasite is released into the gut.

(d) Tetrameres (*Tetrameres* spp.)

The female worms are globoid in shape and 4 -5 mm in diameter and live in the first stomach or proventriculus where they cause thickening of the wall.

Life Cycle: Tetrameres requires an intermediate host and its eggs are taken up by crickets, locusts and grasshoppers which are then eaten by the bird.

(e) Tapeworms

Three tapeworms infest poultry in the Territory, *Raillietina* sp., *Choanotaenia* sp. and *Hymenolepis* sp. and tapeworms are more of a problem to poultry than they are to most other animals.

They range in size from 5 to 15 cm in length and are segmented and ribbon-like. Eggs form in the segments which break off when they are ripe and are passed out in droppings.

Life cycle: An intermediate host is necessary to complete the life cycle of a tapeworm. For *Raillietina* this is some ant species, the house fly or some beetles, for *Choanotaenia* it is the house fly and some beetles and for *Hymenolepis* it is dung beetles, some other beetles and termites.

TREATMENT FOR INTERNAL PARASITES

A number of proprietary brand drugs are available from veterinarians and rural suppliers for treating both roundworms and tapeworms. When using them always follow the manufacturer's directions and observe any required withholding period before taking the eggs or meat of treated birds. Some treatments may be specific for roundworms and have no effect on tapeworms so it is important to read the label before buying.

Worm treatment will cause large numbers of worms and eggs to be passed in the droppings. These eggs are still viable and can reinfest the birds once they have become infective. Therefore birds must be kept away from these droppings. One method is to keep all wormed birds on wire for 6-8 hours after worming and then remove and destroy the droppings. Another method is to lock the birds in a separate shed for up to five days before returning them to the original shed.

Whenever birds are treated for worms always clean out the shed and dig over the run as infective eggs will remain in these areas and can reinfest the flock.

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