Backyard Poultry Worm Control

► Low egg production, dull feathers, skinny birds, and listless behavior are all symptoms of something wrong with poultry. One cause may be internal worms. Knowing what to look for is key to identifying and treating the problem.

Internal worms are considered parasites. These freeloaders feed off poultry, stealing nutrients and damaging the host's body. A bird that's infected with parasites is more susceptible to illness from bacterial, viral, or even other parasitic infections. A flock that carries a heavy load of parasites will not produce as many eggs, hatch as many chicks, or live as long as a flock with no load or one that is relatively light.

Because worms are everywhere, there is always a good chance that a few are hanging around. When they become numerous enough to be a problem for your birds, you can help through management and treatment.

Signs and Problems

The best thing for your flock is for you to know your birds. Establishing a baseline of normal behaviors allows you to identify when one is sick or injured. Watching your birds for 15 to 30 minutes a day will give you a better idea of normal behavior as well as get your birds used to you. Knowing when a bird is not feeling well is instrumental in heading off major problems before they get out of hand. Because chickens (and all poultry) are prey animals, they will act like they are perfectly fine up until the exact moment they succumb to their illness or exhaustion and die.

Following are observable signs that birds are not doing as well as they should. The signs are listed in descending order of relative seriousness.

Fewer eggs produced. Eggs take energy to produce; illness takes energy to fight off. If a normally high-producing flock drops off suddenly, it could be a sign of illness or a spike in parasite numbers. Keep in mind that egg production decreases or goes away during molt. It also drops off in the winter due to the shorter day length (less than 14 hours). In addition, birds older than 1½ years tend to drop off in production as they age.

Anemia. The wattle and comb on a healthy bird usually are red. If they are pale, the bird may have an infection.

Strange droppings. Nobody likes looking at chicken droppings, but they can tell you a lot about the health of your birds. Unusual color and consistency may indicate problems.

Chickens produce two types of droppings a day. The primary droppings should be firm and slightly rounded in shape and be a pale greenish-gray color, often with a white splotch on top. These are produced many times a day. The other type is cecal droppings, produced just once a day. They range in color from yellow to black and are sticky, globular, and may smell particularly bad. Both of these types of droppings are normal.

Droppings that are strangely shaped, orange/red in color, or highly runny indicate a likely problem in the bird's gastrointestinal tract. Further investigation is warranted. If you have broody hens (hens trying to hatch chicks), their droppings often look strange; this usually is not something to worry about.

To test for parasites and parasite eggs in droppings, a fecal float can be performed by your local veterinarian. Alternatively, you can do it yourself using an Epson salt solution and a cheap microscope.

Gradual weight loss. If you pick up a bird, you should not be able to easily feel the keel bone, and the ribs or leg bones should not be prominent. If the bird feels extremely light compared to its size, and its bones are

easy to distinguish, the chicken may not be getting proper nutrients. This can be due to inadequate feeding; however, a high parasite load or some other infection can lead to this.

Listlessness (unthrifty). Chickens are highly active animals. Even when they are relaxing, they often peck at the ground or dust bathe. A bird that isolates itself and is slow to react is another sure sign that something is wrong.

As a prey animal, birds will attempt to hide even if sick so that a predator cannot catch them. Broody hens will hide when putting together a nest. Therefore, hiding isn't always bad. However, difficulty standing, refusal to leave a hiding place, and general disinterest in the world around it means a bird is probably extremely sick and may even be close to dying. Its skin also may feel cool or cold to the touch.

Visible worms. Seeing worms makes finding a treatment easier, but it also indicates that the infestation is probably severe and should be taken care of immediately to prevent death of the bird. Worms can be observed in the eyes, nose, throat, and cloaca, on eggs, or in droppings. Capturing a worm can help with identification and in choosing a treatment. If capture is not possible, a picture also is helpful.

Death. Unfortunately, many times the first sign that something is wrong with a flock is when a bird dies. Because chickens can die for a variety of reasons, ranging from heat exhaustion to overhandling, eliminating possible causes of death will greatly help the diagnostic process. If a bird is healthy and dies shortly after being chased by a dog, it is unlikely that parasites or another disease are the reason. On the other hand, if a very lean, poorly conditioned bird with visible worms dies, the cause is obvious.

After discovering a dead bird, a decision must be made as to whether and how to investigate the reason. One option is to send the carcass to the state veterinary diagnostic laboratory. Another option is to conduct a necropsy (open the body and examine the organs) yourself. If you choose to do it yourself, be aware that it takes some practice to know what a bird is supposed to look like on the inside; it can be confusing. Fortunately, there are multiple books and plenty of example pictures online that can assist.

Worm Life Cycle Basics

More than half of nematodes and all tapeworms have an intermediate host. There are two basic worm life cycles: direct and indirect. You need to keep these in mind when devising a plan of action to eliminate or control worms.

A **direct life cycle** means that a parasite egg needs to embryonate in the environment for some time before it can infect another host chicken. Typically, embryonation takes days, but it can be as short as 24 hours. In other words, after the parasite egg is passed into the chicken's droppings, it needs to incubate before it is taken up by another chicken to hatch and colonize its gastrointestinal tract.

An **indirect life cycle** requires an intermediate host rather than the environment for the eggs to hatch. The intermediate host needs to be consumed by the bird before the parasitic worm can colonize. Common intermediate hosts are grasshoppers, earthworms, slugs, and snails. Through research being conducted at Auburn University, this list is expanding to include other insects. As a general rule, therefore, you should view all insects as possible intermediate hosts.

Common Parasites and Diagnosis

In general, worms and other internal parasites tend to cause a slow decline in the overall health and wellness of the bird. If nonprotozoal (worm) parasites are the suspected cause of this decline, the next step is to determine the specific parasite that is to blame. Following are some common internal worms and their specific identifying traits and symptoms.

Gapeworms (*Syngamus trachea*)

Gapeworms are found in a bird's trachea (windpipe). They cause gasping and coughing by blocking the airway. Birds with a heavy infestation often will breathe with their beaks open or agape, hence the name gapeworm. These worms are small, red, and often easily viewable using a light to look down the bird's throat. They can spread when the chickens eat slugs, snails, or earthworms, which act as an intermediate host for the parasite. Birds also can catch them directly from eating litter contaminated with worm eggs.

Roundworms (ascarids)

These nematodes are the most destructive of worms commonly found in chickens. They can grow to almost 5 inches in length and resemble a stubby piece of

spaghetti. Minor infestations are often not a problem, but serious infestations can completely block the intestinal tract. In extreme cases, they migrate to the hen's reproductive organs and are incorporated into the hen's eggs.

Roundworms can be passed directly from bird to bird by fecal material or from intermediate hosts such as earthworms and grasshoppers. A bird with a severe infection will be underweight, listless, and generally in poor condition. It also may exhibit very watery droppings. In a dead bird, the worms will be highly visible in the intestines. If the bird has not been dead long, the worms may still be active.

Capillary or Threadworms (*Capillaria*)

These worms are found in the small intestine and sometimes in the crop or esophagus. They are very small and threadlike, and burrow into the lining of affected tissue, causing inflammation. A heavily infested bird will be unthrifty and lethargic and often salivate or throw up. Birds occasionally may produce bloody droppings or lay eggs with mottled yolks. Threadworms are spread either directly by birds eating contaminated litter and feces or indirectly by birds eating an intermediate host, in this case, earthworms.

Cecal Worms (*Heterakis gallinarum*)

Cecal worms are found in the chicken's ceca, which are small pouches at the end of the intestinal tract. Severe infestations are uncommon. The main concern with cecal worms is that they act as a host for the protozoan parasite *Histomonas melegridis*, which causes blackhead disease in turkeys and sometimes in chickens. Like most worm parasites, cecal worms can be spread by a chicken eating contaminated litter, an infected bird's droppings, or earthworms.

Tapeworms

These worms are long and ribbon shaped and grow up to 12 inches in length. They are segmented and drop segments as a means of reproduction. Tapeworm segments often can be observed in droppings; they look like grains of rice.

These worms have many intermediate hosts (flies, ants, grasshoppers, earthworms, slugs, snails, beetles, etc.) and can be contracted from ingestion of these organisms. Tapeworms spread only after the bird eats an intermediate host; they do not spread by direct eating of contaminated litter or feces.

Most tapeworm infections are not deadly; however, they can allow other infections to affect the bird. Very heavy infection may result in an intestinal blockage.

Flukes

Flukes are flat and leaf shaped and are not host specific, meaning they can be spread to an area by wild birds. There are four main types of fluke that chickens can get, and they infect different areas of the bird—eyes, skin, oviduct, and intestinal tract.

Flukes are less common and easier to control because of their complicated life cycle that requires two intermediate hosts. The first host can be either a snail or slug that releases eggs into water; the eggs are then consumed by a mayfly or dragonfly. Eaten by a chicken, these insects introduce the flukes into the bird's body.

Other Internal Parasites

Birds are susceptible to other internal parasites as well. The main non-worm internal parasite of poultry is protozoa (single-celled parasites). These include coccidia (species of the *Eimeria* genus), cryptosporidia, and *Histomonas melegridis*, which causes blackhead disease. All of these can cause listlessness, strange droppings, stunted growth, and death in severe cases. If birds are failing to thrive or if many young birds are dying with no worms present, it may be protozoa. Be aware of important internal parasites; they share some of the same general warning signs outlined above.

Treatment

Before performing any treatments it is important to get a proper diagnosis, especially since there are no treatments readily available to the typical small-flock producer. This requires working with a veterinarian or local diagnostic lab to identify the worm species. They will need a fecal sample from your flock. They will perform a fecal float to see if any worm eggs are present in the feces. If there are, they may be able to identify the culprit from the size and shape of the eggs. If there is some doubt, however, they may have to perform additional testing to identify the worm type. If an adult worm is present in the droppings, an exact identification can be made. Following are treatment strategies that can be deployed based on the findings.

Physical Treatments

With most parasitic worms, breaking the life cycle will greatly reduce the ability of the worms to spread.

Typical intermediate hosts are slugs, snails, earthworms, and insects. Unfortunately, chickens actively eat these creatures. To reduce the potential number of intermediate hosts, locate the chicken coop away from areas where these creatures congregate. To reduce the number of snails, slugs, dragonflies, and mayflies, locate the coop away from ponds or streams. To minimize other insects, keep the coop clean and free of split feed or excessive manure. Another strategy is to have insect bait stations around the chicken coop. All these practices, except for not being near a pond, are part of a good biosecurity program.

For these types of transmission, and if worms are an issue, it is a good idea to remove and replace the bedding every 10 days or so. The earth can be tilled and then exposed to sunlight for a few days. Restricting your birds' access to the dirt will cut down on parasitic eggs. If the coop is movable, relocate it every 10 days.

Chemical Treatments

Fenbendazole is currently approved for use in poultry for treatment of adult roundworms and cecal worms; it also is effective against other worm species. It will not kill eggs, however, so they will still need to be eliminated. Removing bedding or moving pens should still be performed to break the worm cycle.

If fenbendazole is ineffective, you will need assistance from your local veterinarian. He or she will be able to provide guidance and prescriptions for any extra-label medications, such as ivermectin, albendazole, piperazine, hygromycin B, or levamisole. All extra-label use requires a prescription from a licensed veterinarian.

Other Treatments

Food-grade diatomaceous earth can be added to birds' feed and to the environment. This has been shown to aid in eliminating worms.

General Preventive Measures

- Quarantine new birds, isolate obviously infected birds, regularly change bedding, and regularly move outdoor runs. This breaks the life cycle by reducing the chance of worm eggs being introduced and spread. Keeping a coop dry, along with prolonged exposure to sunlight, will inhibit the lifespan of any worm eggs present.
- Control pest insects that act as intermediate hosts. This cuts down on the level of infestation as well as prevents the spread of other bacterial or viral diseases.
- Segregate birds by species and age, if possible. Many diseases are communicable.
- Deworm on an as-needed basis only in extreme cases of severe infestation and risk of losing an entire flock. Scheduled deworming is not recommended because worms gradually become immune to the drug being used, leading to a resistant worm population. There currently is only one approved drug for deworming poultry. Hence, keeping worm populations susceptible to the drug being used is very important. If other drugs are needed to combat worms, consult with your veterinarian to see if another treatment can be prescribed. *All extra-label use requires a prescription from a licensed veterinarian.*

Resources

- Merck Veterinary Manual
- Approved Animal Drug Products (Green Book), U.S. Food and Drug Administration

Kaicie Chasteen, Graduate Research Assistant, and **Ken Macklin**, *Extension Specialist,* Professor, both in Poultry Science, Auburn University

For more information, contact your county Extension office. Visit www.aces.edu/directory.

New January 2022, ANR-2851

www.aces.edu