

Common poultry parasites of backyard hens

As the incidence of backyard hens being presented in practice increases, it is important that veterinary nurses can identify the commonly found poultry pests and know how best to advise owners on treatment and prevention. Un-treated parasites (both external and internal) can result in debilitation and in some cases can cause death.

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While the current lack of treatment options available to vets for use in backyard poultry remains so limited, there are a number of ways in which poultry can receive support. The author puts forward treatment options currently licensed for use in chickens.

External parasites

General symptoms of external parasite infestation include:

- Listlessness
- Anaemia (Pale comb and wattles)
- Itchiness and restlessness
- Reduced egg production

- Weight loss
- Matted feathers and feather loss around vent
- Reluctance to enter hen house.

Some common parasites found on chickens are listed below. Routine checking of feathers, especially around the vent area, will help to quickly identify parasitic problems. Prevention of wild birds near chicken accommodation will help to limit external parasites; new stock should always be quarantined.

Lice

The chicken body louse *Menacanthus stramineus* is usually 1–3 mm in length, yellow in colour, and flat in appearance. It has a life cycle of around 3 weeks, laying eggs which pass through three nymph stages before becoming adult. This louse is commonly found around the vent area and under the wings. Lice may live for several months on the host but only remain alive for roughly a week off the host (Phillips, 2013). Chickens are less commonly infested with *Menopon gallinae* (on feather shafts), *Lipeurus caponis* (mainly on the wing feathers), *Cuclotogaster heterographus* (mainly on the head and neck), *Goniocotes gallinae* (very small, in the fluff), *Goniodes gigas* (the large chicken louse), *Goniodes dissimilis* (the brown chicken louse), *Menacanthus cornutus* (the body louse), *Uchida pallidula* (the small body louse), or *Oxylipurus dentatus* (wing louse). Louse eggs are white and are laid at the feather root. Physical removal of the eggs is difficult without actually removing feathers (Figure 1). Lice feed by biting through the skin and ingesting serum ooze and skin debris. Infestation is more likely during autumn and winter months. Direct bird to bird contact is the usual method of transfer. People and other mammals may harbour avian lice, but only temporarily (Phillips, 2013). Although lice are not life-threatening, infestations can lead to loss of condition, discomfort and skin irritation.



Figure 1. Feather damage and lice eggs at feather root.



Figure 2. Adult red mite (photo with kind permission of The Chicken Vet).



Figure 3. Red mite hidden under wooden perch.

Treatment options

- Pyrethrum-based louse powders can be used every 4 days for 2 weeks in autumn/winter. Eggs are not killed during treatment so repeated treatment is essential to catch the emerging nymph stage of the life cycle.
- Diatomaceous earth powder can be used for on-going control on birds and in housing
- Avoid stress/overcrowding and allow birds access to dust baths
- Louse powder is recommended and effective. Lice are not life-threatening (unlike mites), but regular monitoring is needed.

Red mite

Dermanyssus gallinae, the red mite, is probably the most common parasitic problem encountered by poultry keepers. It is easily spread by wild birds. This tiny mite (0.4 mm swelling to 1 mm in size) (Figure 2) is grey in colour until it has had a blood meal when it becomes red. It goes from egg to adult in 7 days, depending on temperatures. The mite lives in cracks and crevices in the hen coop and only emerges at night to feed on the bird. Red mite can live for up to 12 months off the bird without feeding. A heavy infestation of red mite can result in anaemia and in extreme cases death. Hens will avoid entering coops with a heavy infestation.

Treatment options

- Diatomaceous earth as a dusting powder in nest boxes and on the birds directly kills the mite by desiccation
- Choice of coop design and material are key to preventing red mite getting a foot hold. Felt hen house roofs and wooden slatted coops provide easy hiding places for the mite (Figure 3). Plastic coops are easier to clean and less likely to become infested.
- Poultry housing should be thoroughly cleaned at least once a month using Poultry Shield (Bio Link Ltd, UK) paying particular attention to cracks and crevices, and even the outside of the coop.
- Androlis predator mites (Drogonfli, UK) can be used as biological control as they feed on all life stages of the red mite but do not feed on chickens.
- Mite traps (The Chicken Vet, UK) can be used to demonstrate the presence of mites in the coop or housing.
- A torch shined into the coop at night will also highlight heavy infestations; red mite become active at night and are easier to identify on perches and coop furniture.

Northern fowl mite

Ornithonyssus sylvarum, the Northern fowl mite, is 1 mm in length, oval, and pale grey changing to black after feeding. It spends its entire life on the hen and can only survive for 10 days off the host. The adult mite lays eggs on chickens which hatch in 1–2 days depending on humidity and temperature. The larvae that hatch from the egg do not feed but moult to the nymphal stage in around 8 hours. Nymphs mature to adults in 4 to 7 days following a blood meal taken from the host.

The adult mite will complete egg laying in 2 days averaging only two to five eggs per mite. An adult mite will complete her life cycle in 5 to 7 days

Infestation causes depression, anaemia and death if not noticed and treated, usually manifesting itself as a dirty patch of feathering around the vent or elsewhere on the body. Cockerels tend to be more commonly affected than hens.

Treatment options

- Diatomaceous earth applied to every bird in the flock daily for 7 days is an effective treatment, which works

well in tandem with use in the coop all year round.

- In large commercial flocks trials of diatomaceous earth (12% by weight in water) reduced mites significantly only if applied for 2 consecutive weeks, and its effects then lasted <2 weeks (Callaham et al, 2012).

De-pluming mite

Cnemidocoptes gallinae, the de-pluming mite, is typically 1–3 mm in length, flat, gold-grey in colour, and fast moving. This mite is difficult to treat, laying live young which live on the host. The mites burrow into feather shafts on the head, neck, vent, back and tops of legs. This burrowing causing damage to skin tissue which oozes a nutrient rich fluid on which the mites feed.

Treatment options

- Louse powders are ineffective against this mite.

Scaly leg mite

Cnemidocoptes mutans, the scaly leg mite, spends its 3 week life cycle on their host chicken. The females give birth to live young. After two nymphal stages, the mites mature into adults. These adult mites burrow into the feather follicles and outermost layer of skin on the legs where they feed on keratin. The mites form tunnels as they burrow causing extreme irritation (Wade, 2016). Initially scales lift if untreated causing crusting, swelling, thickening, bleeding and lameness if severe. Mites are spread by direct contact with infected birds. A musty (almost mousy) smell is usually noticed.

Treatment options

- Affected legs dunked in surgical spirit once a week for 3 weeks kills the mites. The scales will remain lifted and the legs will not return to a normal smooth appearance until the annual process of moulting has taken place.

Internal parasites (helminths)

Chickens can become infected with nematodes or cestodes which have a detrimental effect on their general health causing weight loss, diarrhoea and a drop in egg production. Effective treatment is available for the vast majority of internal parasites and routine testing 3 monthly using inexpensive home collection kits (The Chicken Vet, UK) should be encouraged. The common internal parasites that may be found in backyard flocks are listed below. Good management of ground conditions in the area surrounding any hen coop is also an effective tool in preventing a build-up of worm eggs. Feeders should where possible be placed on dry ground or gravel or ideally suspended.

Daily collection and disposal of droppings in the immediate run area and hen coop should be encouraged and ground sanitizers used if the ground becomes 'poached' or extremely muddy and in areas of high foot fall. If space



Figure 4. *Ascaridia galli* (photo with kind permission of The Chicken Vet).

Figure 5. *Syngamus trachea* (photo with kind permission of The Chicken Vet).



Figure 6. Tapeworm segments on droppings.

permits the ground should be used in rotation to allow areas to recover and be rested. Many hen coops and runs are designed to be moved to fresh un-poached ground when necessary.

Ascaridia galli (round worm)

A. galli are the largest and most commonly seen worms in backyard poultry. They are up to 5 cm long, white and may be visible in droppings with heavy infestations. Prepatent period (time for parasite to complete its lifecycle and produce infective eggs) is 35–42 days in juvenile birds 50–56 days in mature birds. Severe worm burden can cause a blockage in the gut (Figure 4).

KEY POINTS

- External parasites can cause significant loss of condition and in some cases death from anaemia.
- Routine treatment for internal parasites can prevent loss of condition and egg yield in laying hens.
- Planning the construction of poultry housing can prevent the introduction of red mite.
- Putting in place a flock plan will help owners to spot a problem before it has reached a critical level.
- Routine faecal testing in conjunction with worming should be encouraged.

Capillaria obsignata (hair worm)

C. obsignata are small and hair-like and difficult to see with the naked eye. Although tiny, hairworms can cause considerable damage to the digestive tract even in mild-moderate infestations, and may be fatal. Some species of *Capillaria* require an intermediate host. Larval development in the egg takes 8–15 days depending on temperature. Worms reach maturity in 20–26 days after ingestion by the final host.

Syngamus trachea (gape worm)

S. trachea live in and irritate the lining of the trachea. Following consumption of worm larvae they migrate via the liver and lungs to the windpipe. Worm eggs are coughed up, swallowed and passed out in the faeces. Gape worm causes respiratory disease which causes the hen to breathe with a characteristic open mouth or gape. Gape worm can cause a physical obstruction leading to suffocation. Prepatent period is 18–20 days (Figure 5).

Heterakis gallinarum (caecal worm)

H. gallinarum is 1.5 cm long, white and pointed. More usually affecting turkeys and pheasants it can carry the protozoan organism *Histomonas meleagridis* which causes infectious enterohepatitis or 'blackhead' in turkeys.

Cestodes (tapeworm)

Flattened segmented, ribbon-shaped worms. Usually only the small segments are seen in the droppings (Figure 6). These are uncommon in chickens, but may live in the intestine and cause weight loss.

Treatment options

With the exception of tapeworms, all the worms listed can be treated with flubendazole (Flubenvet, Elanco) at a rate of 3 g per kilo of feed over a 7 day period. Flubendazole is the only licensed wormer available to small animal veterinary practices, although fenbendazole (Panacur Aquasol 200 mg/ml, MSD) is available for commercial sized flocks. Flubenvet is supplied in a 60 g tub in powder form and does not mix easily with pelleted feed tending to find its way to the bottom of the feeder. Clients should be advised to mix

the powder with a small amount of vegetable oil to enable the drug to stick to the feed. Alternatively it can be purchased as a medicated feed (Marriages/Heygates) which is easier to use. Routine worming four times per year is recommended by the manufacturers. Flubenvet has a zero egg withdrawal period.

Coccidiosis

Coccidia are protozoan parasites, living in the lining of the gut. There are seven of the *Eimeria* species specific to chickens, only two of which are pathogenic. Infective oocysts are secreted in droppings and eaten by other chickens. The damaged gut cells are unable to absorb nutrients from the food and as a result the birds cannot obtain the energy they need. Healthy birds are able to cope with a moderate burden of coccidiosis, and older birds can develop immunity. An effective vaccine is available — Paracox (Schering Plough). This is an attenuated vaccine containing all seven species of *Eimeria*. It is administered orally to day old chicks (Roberts, 2007). Infected birds will normally have a hunched appearance and may have bloody or white diarrhoea depending on the species of *Eimeria* present.

Treatment options

Treatment is with anticoccidial drugs and probiotics should be used to restore normal gut bacteria.

Conclusion

Good husbandry will prevent the incidence of infestation of both endoparasites and ectoparasites within a flock although it is impossible to prevent wild birds entering a flock area unless the flock is kept under cover. Wild birds are one of the main parasite vectors. A routine flock plan should be encouraged with chicken owners checking their birds for lice and mites weekly and keeping run or range areas as clean as possible. Finally there is no doubt that more licensed treatments need to be approved for backyard flocks to support practices. **VN**

Conflict of interest: none.

References

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