Ectoparasites in Birds-II

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ARACHNID ECTOPARASITES

Arachnids include mites and ticks, some of which affect poultry.

POULTRY TICKS

1. ***Argas persicus*** (fowl tick) commonly affects chickens, turkeys, pigeons, ducks and geese in tropical and sub-tropical countries. They are found on the skin (especially nymphs and larval stages), but most of the time the ticks hide in cracks in chicken or human houses, market stalls and sheds, or under the tree bark, away from the host.

Etiological Characteristics: The unfed adult tick is pale yellow, turning reddish brown when fed. The female tick is about 8 mm in length, while males are 5 mm. The margin of the body appears to be composed of irregular quadrangular plates or cells, and the hypostome is notched at the tip.

Clinical signs: *Argas persicus* causes severe blood loss leading to progressive lowered production. The affected birds are ruffled, with poor appetite and diarrhea. This species produces tick paralysis in chickens.

2. ***Ornithodoros species*** (the eyeless tampan) affects poultry and other domestic and wild animals. This tick species occurs in tropical and subtropical habitats. They are found on the skin, but most of the time, the ticks hide in cracks or under the tree bark, away from the host. It is not well documented in Africa.

Etiological Characteristics: The integument has wrinkled patterns that run continuously over the dorsal and ventral surfaces. There are no distinct lateral margins of the body, which appears sac-like. These parasites are known to transmit *Borrelia anserina* and *Aegyptinella pullorum*.

Clinical signs:. *Ornithodoros* spp. cause anemia, emaciation, weakness and slow growth.

Special Notes: Females lay eggs in the cracks and crevices they occupy, usually in batches of 30 to 100 or more; they lay several batches of eggs and produce an average of 700 to 800 eggs during their lifetime. A blood meal is needed to produce each batch of eggs. Eggs hatch in 2 to 4 weeks and 6-legged tick larvae appear. Larvae are active day or night and readily seek a host. After attaching to the host, larvae feed for 5-6 days. After this time, they drop from the host and molt to the nymphal stage. Nymphs have 8 legs, and feed only at night and for short periods. After two more nymphal molts, the ticks reach the adult stage. Under favorable conditions, the time from

egg to adult is approximately 30 days. Adult ticks completely engorge on hosts in 30 to 45 minutes. Adults are extremely resistant to starvation, and can live more than a year without a blood meal.

Diagnosis: This is based on history, clinical signs, collection and identification of ticks from the skin. On examination of the skin, larvae are seen attached, especially on non- or less feathered areas of the skin (head, breast, abdomen, cloaca), but not on the leg shanks. They are nocturnal feeders and examination of birds at night is necessary for diagnosis, especially in cases of low infestations.

Treatment: Treat birds and poultry shed(s) with insecticide, making sure that all cracks are penetrated. Nesting material should be removed and burnt or buried. Treatment must be repeated at seven days to break the life cycle. A follow-up treatment at one month is necessary. Spray captive birds in contact with family poultry to prevent re-infestation.

POULTRY MITES

In poultry, mites are found in different parts of the body, and most species are either microscopic or less than 1 mm in length. The common free-living ectoparasitic mites of poultry belong to the family Dermanyssidae, and include the chicken mite, northern fowl mite, and tropical fowl mite. These mites possess relatively well-sclerotized free dorsal and ventral plates, claws and caruncles on the tarsi, one lateroventral stigma near each third coxa, and small chelicerae on long-sheathed bases. Of lesser importance are members of many other mite families that bore into the skin or infect various internal passages and organs.

Dermanyssus gallinae (D. gallinae), Ornithonyssus sylviarum (O. sylviarum) and *Ornithonyssus bursa* (O. *bursa)* are the species found on the skin. They affect chickens, turkeys, ducks and other domestic and wild birds.

Etiological characteristics: *Dermanyssus gallinae* (chicken mites) are quite small, but they can be seen with the naked eye. They can be identified by the shape of the dorsal plate and by the long whip-like chelicerae that look like stylets. The adult measures about 0.7 x 0.4 mm, varying in color from gray to deep red, depending on its blood content. *Dermanyssus gallinae* is cosmopolitan in distribution and has been reported in Tanzania, Nigeria, Zambia and Kenya.

Ornithonyssus (Liponyssus) sylvarium, the northern fowl mite, is recognized as a serious pest in temperate countries and is also extremely common in almost all types of production facilities. It is

easily distinguished from *Dermanyssus gallinae* by possession of easily visible chelicerae, and the shape of the dorsal and anal plates. It has not been reported in Africa.

Ornithonyssus bursa (tropical fowl mite) is distributed throughout the warmer regions of the world and possibly replaces *O. sylviarum* in these regions. The hosts include poultry, pigeons, sparrows, and humans. It closely resembles the Northern fowl mite, but can be distinguished by the shape of the dorsal plate and the pattern of the setae.

Ornithornyssus bursa occurs in the tropics and subtropics and has been reported in Zambia and Nigeria, while O. *sylviarum* occurs in temperate regions.

Cnemidocoptes gallinae (feather mites or depluming mites) are the common mites observed in chickens ,but also found in pheasants, pigeons, and geese. Females are rounded and about 400 microns long. The legs are short and stubby, and the anus is terminal. The dorsal surface is covered by faint striation. However, mid-dorsally the striations are unbroken. The body has no spines or scales. Stalked pulvilli are present on all legs of larvae and males, but are absent in the nymphal stages and females. Copulatory suckers are absent in male.

Cnemidocoptes mutans cause inflammation with exudates and subsequent keratinization of the legs. Pathological findings include small yellowish-grey or reddish-brown, wart-like skin proliferations that seem to begin on the soft parts of the planter side of the tarsus and spread along the digits and up the shanks to the hock. There is elevation of the scales and increased desquamation.

Small infestations with *Cytodites nudus* (air sac mites) may cause coughing and accumulation of mucus in trachea and bronchi. The affected air sacs are cloudy and may have some fibrin deposition. The bird's balance may be affected.

Diagnosis: This is made on basis of clinical features and finding mites on skin scrapings, acetate-tape strips and coated brushing.

Treatment: Mites can live for several months without food, so destocking a shed for a short time will not eliminate the problem. Spray birds and sheds with insecticide, making sure that all cracks are penetrated. Nesting material should be removed and burnt or buried. Treatment must be repeated at seven days to break the life cycle. Scaly leg of chickens can be treated by smearing Vaseline jelly with insecticide or dipping the leg in paraffin (kerosene) and then gently brushing the leg. Paraffin must not be allowed to touch the skin or feathers.

CAUTION ON THE USE OF INSECTICIDES

Birds, particularly ducks, are susceptible to poisoning by most insecticides if they are used too frequently or in high concentration. The directions on the container should be followed carefully. Do not use insecticides that are not intended for poultry. Some insecticides suitable for treating sheds and yards are not suitable for treating the birds themselves, and birds should not even be in the shed when they are being applied. Even if insecticides do not seem to affect the birds, they may be absorbed and appear in the eggs or meat, making these products unsuitable for human consumption. This can happen from treatment of the birds themselves or from exposure to a treated shed or yard. If exposure to insecticides is temporary the effect will wear off, so eggs and meat become safe again after a 'withholding period'. The withholding period for a particular insecticide is stated on the label and must be observed.