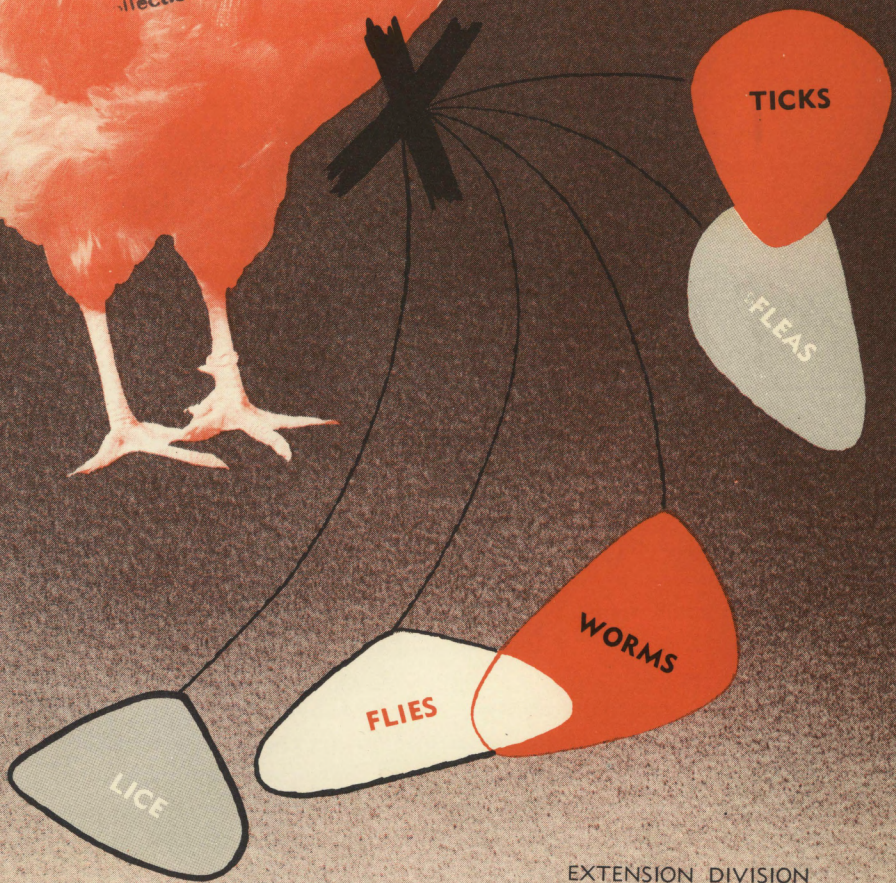
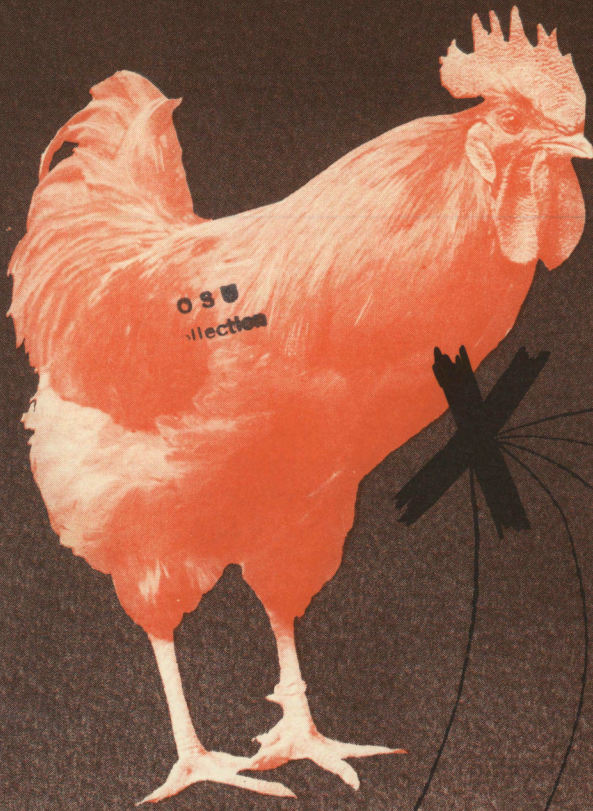


poultry parasites



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POULTRY PARASITES

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INTRODUCTION

Parasites in poultry rob farmers of hundreds of thousands of dollars annually. Parasites alone rarely kill birds but the constant irritation, loss of blood, and loss of feed already partially digested in the intestines weaken many fowls to a point where they are more susceptible to the onset of some disease which does kill. The actual death of the affected birds, however, is not the main loss for which parasites are to blame. Flocks infested with any one of a dozen or more common parasites are unable to produce eggs or to make economical gains in flesh at a rate which will enable the owner to make a profit.

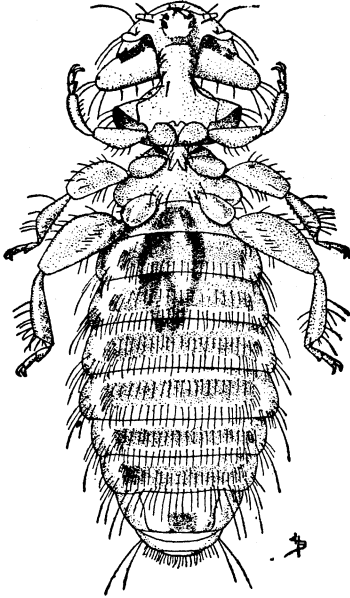
Proper management and strict attention to sanitation are the principal methods used by good poultrymen to combat the troubles caused by parasites. It is the purpose of this bulletin to outline common types of poultry parasites, the best known specific controls, and to list proper management procedures for preventing reinfestation.

Parasites are divided into the two major groups of internal and external, according to their location on or in the host. The external parasites most commonly found on chickens include lice, mites, ticks or blue bugs, and fleas. Mosquitos and flies are somewhat of a problem in localized areas. Birds kept in overcrowded, unsanitary conditions most frequently become infested with external parasites. Small birds such as sparrows and pigeons, usually harbor lice and/or mites and many flocks are infested by these carriers. The present trend toward total confinement of broilers and laying hens helps in the control of these pests. The good poultryman is constantly on the alert for indications that external parasites have infested the poultry house.

Lice

All types of poultry can become infested with one or more of the common species of lice. Chickens seem to be particularly favored by these pests. All lice are quite similar in their habits and life cycles and all can be controlled by the same methods. Bird lice commonly feed by biting off and chewing the scales of the skin and the feathers. The constant irritation to a bird with these parasites usually causes loss of appetite and poor performance in the production of either eggs or meat. If not controlled, the lice increase rapidly in numbers on the body of the chicken and large deposits of eggs are found on the feathers, particularly under the vent and under the wings.

The female louse lays up to 300 eggs and the incubation period is only from 4 to 7 days. Newly hatched lice mature in about three weeks. The increase is very rapid on infested birds. Lice readily move from one bird to another on the roost or from the mother to the young.



Common chicken louse

The simplest and most effective way to treat lice is by the use of nicotine sulphate in a liquid preparation. This material should be placed in drops about one inch apart on the roosts about thirty minutes before the birds go on the roost for the night. When the chickens settle down the heat of their bodies releases fumes which rise through the feathers and kill all the lice on the birds. For complete control, the treatment can be repeated in 10 to 14 days.

Other controls necessitate the individual handling of each bird. They may be treated either by dusting or dipping, although the latter is less popular.

The cheapest and most effective dust to use on fowls is Sodium Fluoride which may be purchased at any drug store and most feed stores.

A pinch of this dust worked well into the feathers below the vent, under the wings and on the back is usually very effective in ridding the bird of lice. Some poultrymen prefer the use of wettable sulphur or Rotenone or combinations of either of these with sodium fluoride. The dust can also be applied by

use of a shaker can. There are many commercial louse powders on the market which come in cans ready to apply. These are uniformly good, and in small flocks are excellent methods.

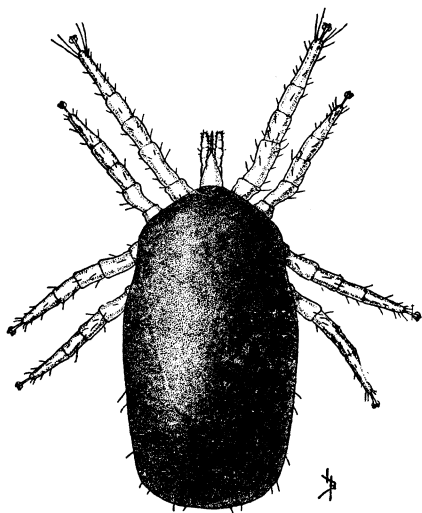
Dipping the birds for lice is a rather involved procedure and the results are no better than either of the methods outlined above. If you plan to dip, be sure and do the work on the morning of a clear, warm day so the birds will be able to dry off. A good mixture for dipping is one gallon of water containing one rounded tablespoon of sodium chloride and two tablespoonsful of laundry soap flakes. Be sure to soak the birds thoroughly in the mixture. A laundry tub is commonly used.

The nicotine sulphate treatment outlined first is the cheapest, simplest and most commonly recommended method for controlling lice.

When the lice are found it is usually necessary to clean out the litter on the floor and in the nests in the poultry house, spray thoroughly and put in new litter.

Mites

There are three principal mites that attack poultry. The most commonly found type is the *red mite* or *chicken mite*. This mite sucks blood principally at night. They live in cracks and crevices in the poultry house and on the roost.



Chicken or red mite after feeding (female)

They are gray colored when empty and when full they are bright red. They reproduce themselves very rapidly and if not controlled, become a serious menace to the health of the flock. Large numbers of these parasites drawing blood from the chicken every night make it impossible for the birds to stay in a healthy condition and immediate steps for control should be taken as soon as mites are found in the house.

All litter, nests, and movable equipment should be removed from the house and a complete and thorough job of spraying done with some good spray, such as carbolineum or a mixture of $\frac{1}{2}$ carbolineum, $\frac{1}{2}$ kerosene and a small amount of DDT. The spray should be heavy enough to soak

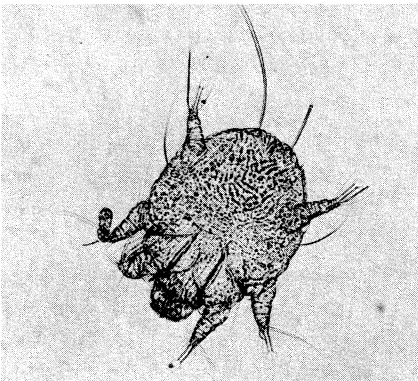
into the wood and penetrate every crack and crevice in the house. The person doing the spraying should be very careful to protect himself with thick clothes, gloves, and a good covering of vaseline about the face or serious burns can result. This treatment should be made early in the morning so that the carbolineum will soak into the wood before the birds come back into the house in order that they will not suffer burns.

All movable fixtures should be sprayed before being placed back in the house and fresh litter should be placed on the floor and in the nests. Nothing less than a complete spray job will control these parasites. DDT is an effective killing agent if it reaches all mites but we recommend carbolineum. If the hen house is thoroughly sprayed once each year there is little danger of mite infestation.

Another common mite is called the *feather mite* and it spends its life on the body of the chicken. The best control for this parasite is a complete dusting. Use dusting sulphur and it is usually necessary to repeat the operation in about ten days. The sulphur must be worked well down into the feathers all over the bird. These mites are not as serious as the red mite but do cause an unattractive appearance in the fowls by working into the base of the feathers and causing such irritation that the feather is frequently



Shanks showing heavy infestation of scaly leg mite



Scaly leg mite greatly enlarged

pulled out by the affected bird. Spraying the house as given for red mites is recommended to prevent reinfestation.

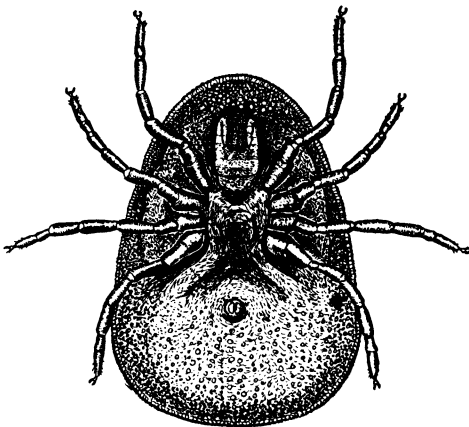
The third common type of mite is the *scaly-leg* type. This pest works its way under the scales of the skin on the shanks and feet of the affected bird. Heavy infestations cause thickened and enlarged scales on the shanks which become seriously disfigured.

The legs of the birds are very unattractive and the constant irritation and toxic secretions impair the general health of the flock. A very simple and effective control is dipping the shanks up to the feather line in heavy lubricating oil. One treatment is usually sufficient and in a few weeks the shanks will return to their normal, healthy appearance.

Fowl Tick

The fowl tick is more commonly called the "blue bug." This is the most serious external pest which attacks poultry. A heavy infestation is soon followed by birds going down rapidly in health, some lameness or paralysis and death losses. Immediate control is imperative if this parasite invades the premises. Fortunately, the blue bug is not a common parasite over most of Oklahoma. The southern counties suffer more because the tick prefers a warm climate.

The blue bug lays eggs in cracks and crevices in the poultry building, particularly under or between the roost poles. The adult blue bug hides during the day and feeds, mostly on the shanks of the birds, after the fowls go to roost. The female lays up to 900 or 1000 eggs which hatch in about ten days. The young crawl onto the fowls and attach themselves to the skin where they suck blood. The most common point of attachment is on the more or less bare space under the wings of the body. At this stage the blue bug looks like small BB shot partially imbedded in the skin, and hundreds of these ticks may be found on a badly infested chicken. They stay on the bird three to ten days and then fall off, shed their skin, and emerge as adults.



Fowl tick or blue bug

The adult tick has eight legs, is rather flat unless completely full of blood, is blue in color, and ranges up to $\frac{3}{8}$ inches in length. During the day they can be found in cracks in an infested house.

Complete control is difficult. A complete saturation of the house, nests, roosts and feeders with carbolineum is best. If the chickens run out and range around trees, the blue bugs will be found under bark in many cases. Once a farm is infested, it is virtually impossible to control this pest if chickens are allowed to run outside the house. A poultry house

can be cleaned if two or more successive sprayings at least ten days apart are made.

Always examine any birds brought on the farm for blue bugs on the body, and if buying a new place make a thorough examination of the poultry houses and yards for any signs of this pest. They can live for years without any chickens being kept on a place.

Fleas

Several different types of fleas infest chickens, but the stick-tight flea is most common. All types of fleas can be controlled by the method given below. Fleas prefer dry conditions and are most commonly found in sandy areas. They lay their eggs in the hair or feathers of the host that they are on. The eggs fall to the ground and hatch in seven days or less. The young are white and legless, and they mature in two to three weeks and pupate. The adults emerge from one week to three months later, depending on climatic conditions.

Fleas are most often brought on the premises by dogs or cats. Any dog or cat about the poultry farm should be treated frequently with a rotenone-sulphur dust or some equally good control method.

Fleas usually infest the heads of chickens. Severe cases have most of the face, and large areas of the comb and wattles covered with fleas. These can be removed by applying a thick coating of vaseline or some similar greasy substance, but the fleas in and about the house must be controlled also.

The house should be thoroughly cleaned, and all litter either burned or hauled to a distant point where poultry or livestock will not come in contact with it. The house should then be sprayed with a mixture of $\frac{1}{2}$ carbolineum and $\frac{1}{2}$ kerosene.

Mosquitoes

These pests sometimes become so thick that they present a problem to poultry growers. The only really satisfactory method of control is to destroy the breeding places. Any pools of standing water should be drained or covered with a coating of oil so that mosquitoes cannot breed. Farm ponds or stock tanks can be controlled by stocking with fish so they will eat the larvae.

Mosquitoes damage the birds by biting the exposed parts of the face and head at night. They may be a factor in spreading some diseases and they are a source of irritation also. There are repellent sprays on the market that will help control them in the poultry houses.

Flies

The principle trouble that flies cause poultry is by serving as intermediate host to the tape worm. This will be discussed in that section of the bulletin. Flies can be controlled by the use of DDT used as a spray on and around the poultry houses.

Summary On External Parasites

We want to repeat that good management and strict sanitation are the poultryman's best weapons against parasites. The close observer will be on the lookout to spot the first indication that these pests have infested his premises, and take immediate and positive steps to control them. When a poultry house is first built, or when an old one is remodeled, it is an excellent idea to spray completely with a mixture of $\frac{1}{2}$ kerosene and $\frac{1}{2}$ carbolineum. All fixtures that go in the houses as well as all walls, joints, rafters, and ceilings should be completely saturated. If this procedure is then followed once each year, for example just before pullets are housed in the fall, most external parasites can be eliminated.

The good poultryman will not bring any fowls on his place without close examination for parasites. All preventive methods should be taken to keep wild birds or pigeons away from the poultry houses. Used equipment should be disinfected thoroughly before being brought on the place.

Internal Parasites

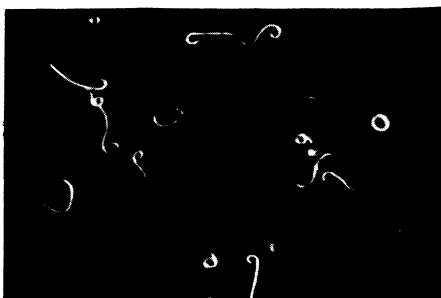
Parasites that live within the body of the fowl during part of their life cycle are classified as internal. The discussion in this bulletin will be limited to three most common types of poultry worms.

We should like to stress first that while there are a great many wormy flocks that need treating, there are also a great many flocks of birds that are treated when they don't need it. Before you treat your birds for worms, have one killed and examined by someone who can determine if worming is needed. Most chickens carry a few worms, particularly the pin worm found in the caeca. Chickens that are kept in insanitary, crowded conditions are most likely to become heavily infested.

Worms cause a general breakdown in the health and appearance of the flock when allowed to increase in the birds. They live on feed which the fowl has at least partially digested, and rob their host of the nutrients necessary for health and production. They are particularly destructive when they infest young, growing chickens. When the fowl becomes weakened by worms, it then easily becomes infected with some disease due to lowered resistance, and often dies.

Cecal Worms

These parasites are known by several names; pin worms, cecal worms, or small round worms. They range from $\frac{1}{4}$ to $\frac{3}{4}$ inches in length, are white, slender, round bodied, and tapered at each end. They inhabit the ends of the caecum or blind gut and cause little or no damage in most chickens. Their primary importance is due to the fact that they carry the disease organisms that cause blackhead in turkeys. This is a particularly fatal disease that affects turkeys primarily, but in rare instances it is found in chickens. These worms can be controlled by treating the flock with phenothiazine. These worms are found in practically all fowls, but rarely become a serious problem. They cannot be completely eliminated from any flock, but they can be controlled with the phenothiazine treatments.



Cecal worms

Large Round Worms

This worm is the one most commonly found when the intestine of the chicken is split open in post-mortem examinations. They are quite similar to the cecal worm except much larger, often 2 to 3 inches long. The worms feed by absorbing the partially digested food in the small intestine of the fowl. They sometimes become so thick that they practically stop up the passage of any material through the intestines. They lay eggs which are passed out with the droppings and these eggs change into infective larvae in 15 to 20 days. These are then picked up and swallowed by other fowls and the infestation is increased.

There are several effective controls. Any form of nicotine either mixed in the mash or given in individual capsules to the bird will cause them to expel the round worms. There are numerous worm capsules and powders on the market for mixing in the mash and most of them are effective. Liquid iodine treatments are excellent, but harder to administer.

Chickens kept under good conditions and properly fed rarely have enough round worms to cause a serious problem. The feeding of whole, dry oats is important in preventing round worm infestations. The worms are seldom



Section of intestine showing round worms

found in broilers except where the built-up litter system is used. If found in broilers, immediate control steps are necessary or rapid reduction in rate of gain will be noticed.

Tape Worms

This is the worm that is hardest to control and causes the most damage. Fortunately the tape worm is not as commonly found as the round worm, but when found it is much harder to control. The tape worm must have an intermediate host such as the fly, earth worm, or beetle. When the eggs are passed out of the chicken they are eaten by these insects and hatched within the body of the insect. When this insect is in turn eaten by the

chicken, the young tape worm escapes and attaches itself to the lining of the intestine of the fowl. When broilers or laying hens are kept in total confinement and flies are kept out of the poultry house, the tape worm problems are eliminated.

The tape worm is a thin, flat, segmented parasite that attaches itself by the head to the intestinal wall. Each of the segments that grow in a continuous line back from the head is capable of both producing and fertilizing its eggs. As these segments mature they pass out of the fowl and the life cycle is completed as outlined above.

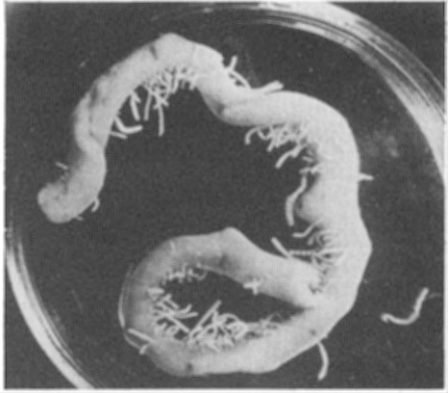
No drug has yet been found which will kill all the worm heads attached

Mature tape worms



to the intestinal wall. Kamala will expel most of the body segments and perhaps eliminate some of the heads. Since several weeks are necessary for the worm to grow additional mature segments, this drug affords some control. Kamala is a harsh drug and continued use of it is detrimental to the health of the fowl. There are iodine preparations which are fairly effective on tape worms but not completely so.

Prevention is all important with this parasite. Young chickens should never be allowed to run on ground which older birds have had access to, or where droppings from older birds have been dumped until at least one year has elapsed and the ground has been plowed. The liberal use of lime under the dropping pits to prevent flies from having access to the worm eggs is another control method, but no method is completely satisfactory except the elimination of flies and other intermediate hosts.



Tape worms showing attachment to intestines

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