Poultry Lice and Their Control

BY F. C. BISHOPP

SEVERAL different kinds of biting and chewing lice infest poultry, each having its preferred location on certain parts of the body. Young birds especially can be seriously affected or even killed by severe attacks. The delousing procedure described in this article can easily be applied on any farm.

POULTRYMEN realize that it is essential to control poultry lice, particularly in the case of chickens. These parasites are also a problem to those who raise turkeys, ducks, geese, guineas, and pigeons or grow wild birds, such as quail and grouse, in captivity. Losses due to poultry lice throughout the United States run high in the millions of dollars each year as the result of death, especially among young fowls, retarded development, reduced egg production, interference with incubation, and damage to plumage. Probably the losses are heaviest among farm and backyard flocks kept as a side line rather than among commercial flocks, which are given special attention. Enough is known about lice and their control to make these losses totally unnecessary.

All lice infesting poultry and birds are of the biting and chewing, not the bloodsucking, kind. Some persons confuse lice with mites. The latter suck blood, differ from lice in their habits, and are controlled by different methods.

In general, each species of poultry lice is confined to a particular kind of poultry, but some pass readily from one kind of fowl to another, especially when the birds are closely associated. In this country, chickens are rather commonly infested with seven species of lice, turkeys with three, ducks and geese with three, pigeons with three, and guinea fowl and peafowl with two or three each.

1 F. C. Bishop is Assistant Chief of the Bureau of Entomology and Plant Quarantine.
DEVELOPMENT AND HABITS OF POULTRY LICE

All species of poultry lice have certain habits in common. All of them live continuously on feathered hosts and soon die if removed from them. The eggs are attached to the feathers, and the young lice closely resemble the adults except in color and size. All poultry lice have strong chewing jaws, flattened bodies, legs fitted for clinging to feathers, and a remarkable ability to move about and hide among the feathers.

They differ, however, in their preferred locations on the body and the feathers, and these preferences have given rise to the common names applied to the various species.

The length of the incubation and development periods of several of the species have not been determined, but they are believed not to vary widely. In general it may be said that the incubation period ranges from 4 to 7 days, and the development of the lice from hatching to the adult stage requires 17 to 21 days. As the lice grow, the skins are shed two or three times. Mating takes place on the fowl, and egg laying begins 2 or 3 days after the lice mature. The number of eggs deposited has not been accurately determined but appears to range from 50 to 300.

CHICKEN LICE

THE HEAD LOUSE

As the name “head louse” suggests, this species (*Lipeurus heterographus*) is found mainly on the head, although it occurs occasionally on the neck and elsewhere. It is usually located close to the skin in the down or at the base of the feathers on the top and back of the head and beneath the bill. In fact, the head of the louse is often found so close to the skin that poultrymen think it is actually attached to the skin or is sucking blood. Although it does not suck blood, it is very irritating and ranks first among the lice as a pest of young chickens and turkeys, which often become infested within a few hours after hatching by lice from the mother. In cases of heavy infestation the chicks soon become droopy and weak and may die before they are a month old. When the chickens become fairly well feathered, head lice decrease in numbers, but they may increase again when the fowls reach maturity.

This louse (fig. 1) is oblong, grayish, and about one-tenth of an inch in length. The pearly white eggs (fig. 2) are attached singly to the down or at the base of the small feathers on the head. They hatch in 4 or 5 days into minute, pale, translucent lice, resembling the adults in shape.

FIGURE 1.—Head louse of the chicken, adult male. Greatly enlarged.
THE BODY LOUSE

The body louse (Menacanthus stramineus) of chickens prefers to stay on the skin rather than on the feathers, and it chooses parts of the body that are not densely feathered, such as the area below the vent. In heavy infestations it may be found on the breast, under the wings, and on other parts of the body, including even the head.

When the feathers are parted, the straw-colored body lice may be seen running rapidly on the skin in search of cover. The eggs are deposited in clusters near the base of small feathers, particularly below the vent or, in young fowls, frequently on the head or along the throat. The eggs hatch in about a week, and the lice reach maturity in 17 to 20 days.

This is the most important of the lice that infest grown chickens. When it is present in large numbers, the skin is greatly irritated, and scabs may result, especially below the vent.

THE SHAFT LOUSE

The shaft louse, or small body louse (Menopon gallinae), is similar in appearance to the body louse but somewhat smaller. It has a habit of resting on the shafts of the body feathers of chickens, where it may be seen running rapidly toward the body when the feathers are suddenly parted. Sometimes as many as a dozen lice may be seen scurrying downward along a feather shaft.
Since the shaft louse apparently feeds only on parts of the feathers, it is much less important than its relative, the body louse. It is found in limited numbers on turkeys, guinea fowl, and ducks kept in close association with chickens. It does not stay on young birds until they become well feathered.

**Other Kinds of Chicken Lice**

Four other kinds of lice are found rather commonly on chickens, but they are usually less abundant and important than those just discussed. The wing louse (*Lipeurus caponis*), a slender gray species resembling the head louse, to which it is related, is the most widely distributed and is found in the greatest numbers. It is sluggish and is usually seen resting between the barbules of the wing and tail feathers, or occasionally on the neck hackles and feathers of the back.

The fluff louse (*Goniocotes hologaster*), which is found, as the common name implies, on the fluff of the body feathers, is small, rather broad, yellow in color, and inactive. As it stays mostly in the fluff, it causes little irritation or other injury.

The large chicken louse (*Goniocotes gigas*) is a robust, dark, smoky-gray species of striking appearance. It is seldom abundant or of much importance.

The brown chicken louse (*Goniodes dissimilis*), occurring mainly in the Southern States, is large and reddish brown in color. It seldom occurs in large enough numbers to cause serious damage.

**Turkey Lice**

The slender turkey louse (*Lipeurus gallopavonis*) and the large turkey louse (*Goniodes meleagris*) are found on both wild and domesticated turkeys and may cause serious annoyance, although as a rule they are not very abundant. Poults hatched by chickens are often infested with the common body louse and the head louse, which pass to them from the foster mother. The combined attacks of these lice may retard growth and reduce the vigor of young turkeys. Head lice have been reported to have caused heavy mortality among newly hatched poults.

**Lice of Geese, Ducks, Pigeons, and Other Poultry**

Geese and ducks are seldom noticeably affected by lice. Three of four species are occasionally found on these fowls, and when the young are hatched by hens they are often attacked by the head louse of chickens.

Pigeons are subject to the attacks of six species of lice. Some of these are to be found on the birds in practically every pigeon loft, but they seldom become sufficiently abundant to cause marked ill effects. Carrier pigeons and show birds frequently have damaged feathers, and some owners attribute this to lice, particularly the
large body louse (fig. 3). The damage in such cases adversely affects the appearance of the birds and probably also their speed and endurance in flight.

CONTROL MEASURES

Since all bird lice live continuously and breed on the plumage and bodies of their hosts, little attention need be paid in control operations to the houses, litter, and yards. In eradicating lice all poultry on the premises should be regarded as lousy if any of them have lice.

In general it is advisable to delouse a flock in the fall when the surplus stock is disposed of so that the number of fowls to be treated is reduced. This assures their entering the winter free from lice. If no infested fowls are added to the flock, it will be free from the pests the following spring, which is especially desirable where hens are used for hatching and brooding.

Fortunately control procedures have been developed that are highly effective and thoroughly practical.

SODIUM FLUORIDE VERSUS LICE

Methods of eradicating poultry lice through the use of sodium fluoride as a powder or a dip were first described in 1917. A single treatment will destroy all species of lice, including all eggs, without injury to the fowls.

Commercial sodium fluoride is recommended for this purpose. It is a white powder which should contain 90 to 98 percent sodium fluoride. The material is generally available and usually retails at 30 to 60 cents a pound. Since sodium fluoride is poisonous to human beings and animals when taken internally, care should be exercised in storing the powder, so that it will not be mistaken for something else, and in disposing of solutions of it.

To insure treatment of all louse carriers the fowls should be shut up at night and a search made for any that do not roost in the poultry house.

DUSTING

The lice are found on various parts of the body, and it is essential that the sodium fluoride be placed on the infested areas. With this method it is necessary for two people to work together, one holding the fowl and the other applying the insecticide. The powder may be applied with a shaker can held in one hand while with the other the

---

1 BISHÖPP, F. C., and WOOD, H. P. MITES AND LICE ON POULTRY. U. S. Dept. Agr. Farmers' Bul. 801, 27 pp., illus. 1917. (Revised, 1939.)
feathers are raised so the powder will reach the skin. It is best to hold the birds over a shallow pan to catch the surplus powder. It is also economical to dilute the powder by adding 2 parts of some fine material, such as flour, road dust, or sulfur, to 1 part of sodium fluoride.

The so-called pinch method is preferable to the use of a shaker. It involves less waste and less dust floating in the air, and only one operator is required. The fowl is held in one hand by grasping the base of the wings over the back, and the powder, kept in a pan near at hand, is applied by placing a small pinch among the feathers next to the skin. About 11 pinches are applied to the fowl, 2 along the back, 1 on the neck, 1 on the head, 1 on the breast, 1 below the vent, 1 on each thigh, 1 on the tail, and 1 on each wing when spread.

Since sodium fluoride is irritating to the nose and throat, the operator should wear a respirator or a piece of wet cloth over his nose and mouth. The fowls should be released in the open air as fast as they are treated.

Young chickens and other fowls are likely to be injured if they are hovered closely by the mother after she has been treated. It is therefore highly advisable to delouse hens before the young hatch. If this has not been done, the young should not be treated until they are a week old, and then only two very small pinches of the powder should be applied to each, one distributed on the back, neck, and head and the other on the under side, including the throat.

Grown turkeys should receive about 15 pinches of the powder and pigeons 5. Because of the close feathers of the latter, however, dipping is more effective.

**DIPPING**

Some poultry raisers maintain that fowls should not be dipped. Extensive experience, however, has shown that when more than 35 fowls are to be treated, dipping in sodium fluoride solution is highly effective, economical, convenient, and without ill effects on the poultry. The only precautions necessary are that the birds should be handled carefully, that the work should be done on a mild sunny day or in a warm poultry house, and that the operation should be completed at least an hour before sundown. Fowls dipped in the solution are not thoroughly wet, and the feathers dry in an hour or two.

The procedure is simple. Tepid water is measured into a tub, and a rounded tablespoonful of sodium fluoride is added for each gallon. The solution should be within 6 or 8 inches of the top of the tub, which is then placed on a box at a convenient height for dipping. The fowls are held in one hand by the wings over the back and lowered into the solution, with the head left out above it. The feathers are then raised beneath the solution with the other hand to allow penetration, the head is ducked, and the fowl is lifted out, allowed to drain a few seconds, and liberated. The actual dipping of a fowl requires only 20 to 30 seconds.

To completely rid pigeons of lice it is necessary to add 1 ounce of laundry soap to the dip to obtain a complete wetting of the feathers.\(^3\)

---

COST OF TREATMENT

One pound of sodium fluoride applied by the pinch method will treat about 100 hens. When a considerable number of fowls are to be treated, less than half that amount is required for dipping. Figuring the powder at 40 cents a pound and the labor at 30 cents an hour, the cost for treating 100 fowls amounts to $1.65 by the pinch method and $1 by the dipping method. This is very reasonable when it is considered that one treatment means the complete eradication of all lice from the premises, provided all the fowls are treated.

OTHER REMEDIES

Nicotine sulfate applied to the roosts under proper conditions is reasonably effective in eradicating lice. The pure (40-percent) material is applied with a brush to the upper side of the roosts about half an hour before the fowls go to roost. The fumes penetrate the feathers, and the lice continue to die and drop out during several nights following the application. This method works best in reasonably tight chicken houses and during warm weather. It cannot be depended on to eradicate lice completely, however, as it does not reach all of them, especially those on the head, and usually some of the fowls do not roost on the treated perches.

Sodium fluosilicate, a compound related to sodium fluoride, is a satisfactory substitute when used as a dip in the same way as the latter. The material is usually too coarse for very effective use as a dust.

Fine sulfur applied freely as a dust has been found satisfactory as a control for poultry lice. In order to destroy all the parasites in a single treatment, the treatment must be very thorough.

Many other materials and mixtures will destroy poultry lice, but everything considered, none is equal to sodium fluoride. Dust baths are useful in holding down louse infestations, but some fowls do not use such baths, and elimination of lice is never accomplished by this means.

Some remedies offered for sale and even widely used have little or no value in louse control. Among these should be mentioned materials sold for putting in the water or feed of poultry. Most of these are sulfur compounds. Such internal medication has been found to be valueless for the control of external parasites.