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O. S. Bare

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Bare, O. S., "External Parasites of Poultry and Methods for Their Control" (1943). *Historical Circulars of the Nebraska Agricultural Experiment Station*. 82.

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Dusting with sodium fluoride powder.



Using sodium fluoride in a dip.

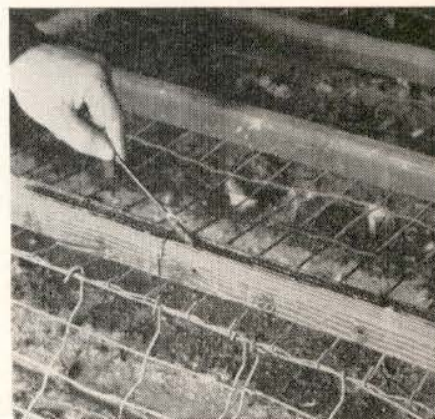
External Parasites of Poultry and Methods for Their Control

Experiment Station Circular 75
December 1943



Applying blue ointment correctly.

The Experiment Station of the
University of Nebraska College of Agriculture
W. W. Burr, Director, Lincoln, Nebraska



Applying nicotine sulphate to roosts.

External Parasites of Poultry and Methods for Their Control

BY O. S. BARE

External parasites cause severe losses to Nebraska poultry producers each year, and in many cases may be the deciding factor between success and failure. Under present circumstances, when maximum production is essential, prompt and effective measures must be taken to hold these saboteurs in check.

LICE

Lice attack all kinds of domestic fowls. Chickens are attacked by several species, most important of which are the chicken body louse (*Eomenacanthus stramineus*) which is common on chickens of practically all ages, and the chicken head louse (*Lipeurus heterographus*) which most often attacks young chicks. The chicken shaft louse (*Menopon gallinae*) and several other species of chicken lice occur in the state, but as a rule these are of only minor importance. Turkeys are infested by the chicken body louse, and at least two species of turkey lice, and young poults often are infested by the chicken head louse. Ducks and geese have their own particular kinds of lice and usually are attacked only by those species.

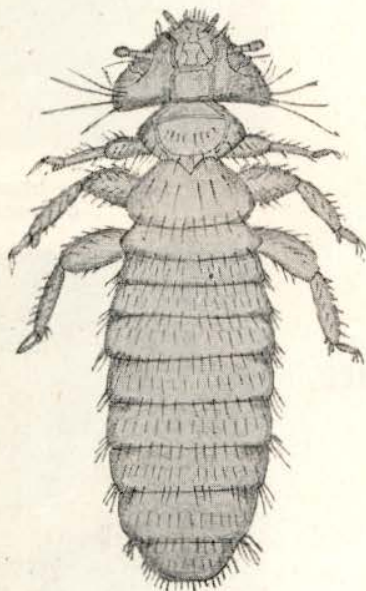


Fig. 1.—Large body louse.
(After Osborne.)

All poultry lice have biting mouth parts and feed on the scales of feathers, hair, and skin. They cannot puncture the skin and suck blood as do the sucking lice of mammals; but poultry lice are intensely irritating and may feed on the skin until blood oozes through and scabs form.

Poultry lice spend their entire lives on the host, and can live only a short time if separated from it. Their eggs or "nits" are laid upon the host and are glued to the feathers, hair, or skin.

Control: Materials and Methods

Several different materials and methods may be used for controlling poultry lice. Sodium fluoride, sodium fluosilicate, sulphur, blue ointment, and nicotine sulphate, all give good

control under proper conditions. The best one to use depends on individual circumstances and the species or kinds of lice involved. Several methods of applying the materials such as dipping, dusting, etc., may be used.

Sodium fluoride.

Dipping. Sodium fluoride, used either in a dip or as a dust, will control all species of poultry lice. For use as a dip one ounce of the chemical should be dissolved in each gallon of water. The water must be moderately warm to avoid chilling the birds, and air temperature should be above 70 degrees Fahrenheit. In dipping the fowl, hold the wings with one hand and the feet with the other. Set the bird in the solution of dip, release the feet, and ruffle the feathers with the free hand so that all the feathers and skin become wet. The beak should then be held shut and the head ducked two or three times while the head feathers are ruffled backward with the thumb. Lift the bird out of the dip and allow to drain for a few seconds before releasing. Sodium fluoride dip works rapidly, killing all lice within a few hours. One dipping usually results in complete eradication. *Caution: As sodium fluoride is a stomach poison, care must be used in handling it. Left-over dip should never be emptied where livestock can get to it.*

Dusting. Sodium fluoride may be used as a delousing dust regardless of weather conditions. The bird is placed on a flat surface, preferably in a large shallow pan to prevent loss of powder. It is held by the wings or legs with one hand while with the other hand small pinches of the dust are placed on the skin as follows: one on the fluff below the vent, one on the head, one on the neck, one on the breast, one on each thigh, and one on the underside of each wing. Sodium fluoride, when applied as a dust, works rather slowly and three or four days may pass before all the lice die. One dusting, however, is usually sufficient. Some persons find sodium fluoride very irritating to the skin. Such individuals are advised to wear rubber gloves and should avoid getting the powder in their clothing or inhaling it.

Turkeys and guineas may be dipped or dusted with sodium fluoride the same as chickens, but this treatment is not suitable for ducks and geese.

Sodium fluosilicate may be used instead of sodium fluoride either as a dust or as a dip.

Sulphur.

Dipping. A dip made by mixing a pound of wettable sulphur in ten gallons of water is effective against poultry lice. Chickens and turkeys may be dipped in the same manner as with sodium fluoride. Ducks and geese also can be deloused with a wettable-sulphur dip. The operator holds the base of the wings firmly with

one hand and the legs with the other. The bird is then immersed, and one hand used to separate the feathers so that the dip may penetrate to the skin. Considerable time must be allowed for the dip to wet the feathers, including those of the head and neck. As sulphur does not kill the louse eggs on the bird, treatment should be repeated eight or ten days later.

Dusting. When used as a dust in the same manner as recommended for sodium fluoride, sulphur gives good control of lice on chickens and turkeys. Two applications eight or ten days apart are needed. Dusting sulphur or ordinary commercial sulphur may be used. However, sulphur dust should not be used on young chicks and poults as it may burn them severely.

The Florida Experiment Station reports excellent control of chicken lice by the following procedure: (1) a generous dusting of floors, nests, etc., with sulphur; (2) treating the soil of poultry runs with sulphur at the rate of two pounds per hundred square feet;

and (3) feeding of a dry mash containing five per cent of fine sulphur for a period of three weeks. The latter measure was of value, it would appear, because the feathers of the bird's head and neck became impregnated with the sulphur during feeding.

Use of Ointment. A sulphur-lard ointment has proved to be effective against head lice on chicks and poults and appears to be harmless when rubbed sparingly into the down or feathers of the head and throat. The ointment may be made by mixing thoroughly one part of sulphur and four parts of lard by volume. In fact pure lard, alone, appears to give excellent control of head lice.

Mercurial (blue) Ointment.

This ointment is an old and effective remedy for control of the chicken body louse. In using it, the feathers just below the vent should be separated, and a lump of ointment the size of a pea rubbed well into the skin around the base of the feathers. For best results it is necessary that the

ointment actually reach the skin where it comes in contact with the eggs located on the skin at the base of the feathers. This treatment is very effective and long lasting. Not over two applications per year are needed, if the work is thoroughly done.

Mercurial ointment affords no control over such species as shaft lice which do not come to the vent for moisture.

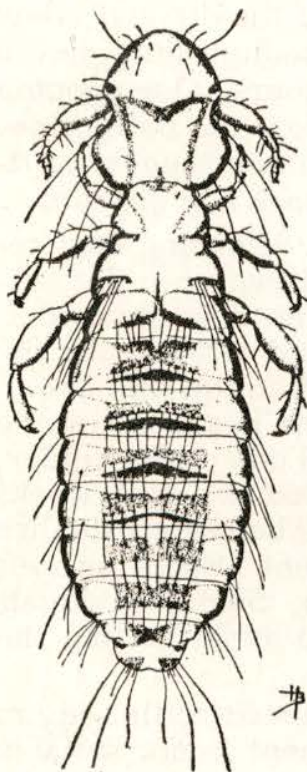


Fig. 2.—Chicken head louse.
(U.S.D.A.)

Since mercury will affect the fertility of both birds and eggs, poultry producers are cautioned against using it on breeding stock for two or three months prior to or during the breeding season. Furthermore, it should always be borne in mind that mercurial ointment is a dangerous poison and extreme care must be taken in its use.

Nicotine Sulphate.

When used as a roost paint, nicotine sulphate is probably the most convenient of all louse remedies for large scale operations. It is particularly suitable for commercial producers who have large numbers of birds obtained mainly from incubator-hatched chicks. The common body louse of chickens and certain other species of poultry lice are controlled very effectively by this material, but it is only partly effective against some others. In using it, a narrow band of the chemical is painted along the top of each roost shortly before the birds go to roost for the night. The fumes rising from nicotine sulphate penetrate among the feathers and kill the lice. If adequate ventilation is provided, this treatment is harmless to the birds, but they should be protected from direct drafts.

BEDBUGS

The common bedbug (*Cimex lectularis*) often infests poultry houses and becomes a serious problem. Bedbugs are nocturnal in habit, hiding in cracks and crevices of walls, under boards, nests and feeders, and in straw or other litter during the day, but at night coming out to attack the poultry. They are blood-sucking insects, and by repeated attacks cause loss of flesh, decreased egg production, or even death.

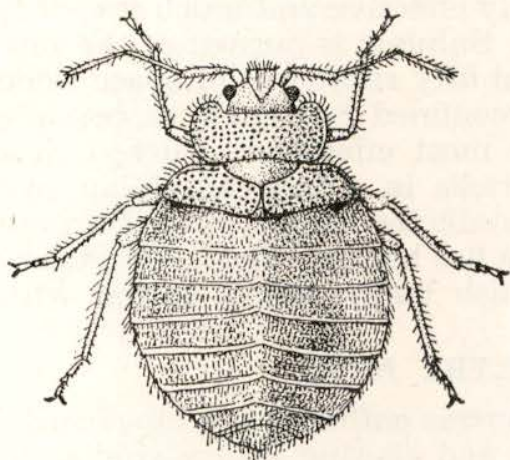


Fig. 3.—Common bedbug.
(U.S.D.A.)

Control: Materials and Methods

Bedbugs in poultry houses may be exterminated either by spraying or by fumigation, but before either is attempted, loose nests, boards, feeders, etc., should be removed and all straw or other litter cleaned up, taken out, and burned. Straw lofts, baled-straw walls, or straw-insulated walls complicate control and often make it impossible unless such material can be removed and burned. This difficulty may be at least partly avoided by sprinkling such material with creosote before installing it.

Spraying.

Coal tar creosote. When used either full strength or mixed with not more than an equal amount of kerosene, coal tar creosote kills all bedbugs that it reaches and also destroys their eggs. One thorough application may give complete control but where it is difficult to force the material into cracks and crevices, two or three applications at intervals of a week may be needed. A spray under pressure is best, but good results are possible by applying the material thoroughly with a broom or long-handled brush.

Carbolineum or anthracene oil. Either of these may be used in place of creosote, and either with or without kerosene. They are fully effective but are more expensive. Where creosote, carbolineum, or anthracene oil is used, it is best to keep the poultry out of the house for two or three days to avoid injury to them.

Used crankcase oil. This, or a mixture of crankcase oil and kerosene, gives good results but it lacks lasting effect.

Fumigating.

Hydrocyanic acid gas. In tight buildings fumigation with calcium cyanide, using a pound of the powder for each five hundred cubic feet of space, is usually satisfactory. The building should be kept tightly closed for twenty-four hours, after which it must be opened from the outside and aired well for several hours before anyone enters it. *However, this gas is so dangerous that its use can be recommended only by those who are thoroughly familiar with it and the dangers involved.*

Sulphur fumigation. This is fairly effective and much less dangerous than hydrocyanic acid gas. Sulphur is burned at the rate of one pound for each two hundred fifty cubic feet of space to be fumigated. The fumes should be confined as tightly as possible for twenty-four hours. It can be most effectively burned in a large pan or bucket placed on bricks in a tub containing two inches of water. This measure forestalls the danger of the burning sulphur running over and causing a fire hazard. Metal objects exposed to sulphur fumes will tarnish badly unless coated with grease.

COMMON POULTRY MITE

Common poultry mites (*Dermanyssus gallinae*) are blood suckers, having much the same habits and causing injury similar to that of bedbugs. They hide during the day in any nearby shelter, and at night come out to attack the fowls. Most of them leave the birds before daylight, but a few may stay on the host throughout the day.

Control: Materials and Methods

As is the case with bedbugs, the first step in controlling common poultry mites is a thorough clean-up of the poultry house. Follow-

ing this, good control can be obtained by means of sprays or dusts. Fumigation is considered only partly effective and seldom applicable.

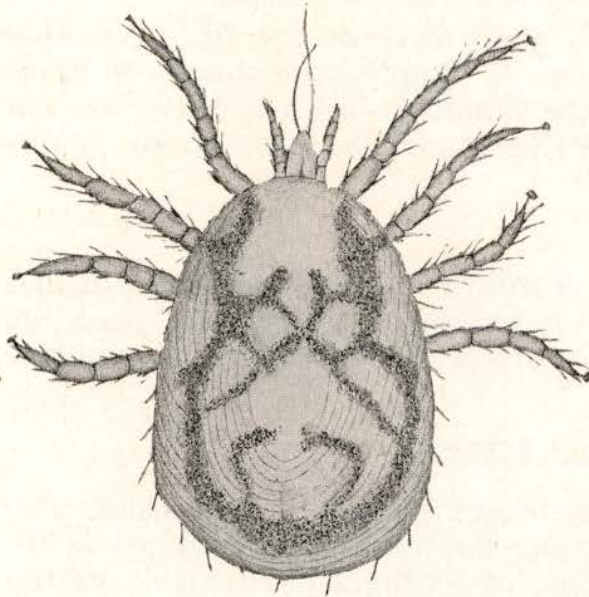


Fig. 4—Common red mite.
(After Hutyra and Marek.)

Spraying.

Coal tar creosote, carbolineum and anthracene oil. All of these, either pure or diluted with not more than an equal volume of kerosene, are effective when used as recommended for bedbugs.

Used crankcase oil. This, either alone or diluted with kerosene, gives good results, but it lacks the lasting qualities of the other recommended materials. If a thorough treatment is given to the poultry house in late winter or early spring, little trouble

should be experienced from mites throughout the year.

Dusting.

Sulphur. Thorough dusting with sulphur was found by the Florida Experiment Station to give excellent control of this mite. The dust should be used liberally on floors, nests, litter, etc., and, for best results, it is necessary to employ a dust gun to apply the dust to cracks and crevices of the walls and poultry house fittings. It is not likely, however, that the effect of this treatment would be as lasting as that of oil sprays.

SCALY LEG MITE

The scaly leg mite (*Cnemidocoptes mutans*) works underneath the leg scales of fowls causing enlargements, roughness and deformities that may seriously cripple them. Intense itching and irritation caused by the mites may greatly lower productivity even before lameness appears. In rare cases the infestation may spread to the comb and wattles.

Control: Materials and Methods

Dips and ointments effectively control this pest. Such treatments must have good penetrating qualities in order to reach the source of the trouble.

Dipping.

Linseed oil and kerosene. A mixture of equal parts of these materials makes an excellent dip. The shanks should be saturated, and a second treatment given 30 days later if needed.

Crude petroleum or fuel oil. Both of these are fully effective and good results are secured also by dipping the shanks in kerosene or used crankcase oil. Care should be used to keep the dipping material from getting on the tender skin above the shanks since burning may result.

Ointment.

Sulphur and lard ointment. A mixture of one part sulphur and four parts lard is good. In severe cases it is advisable to soak the shanks in warm soap suds and remove the loosened scales before applying the ointment.

OTHER MITES

Other mites occasionally may attack poultry in Nebraska. The more important of these are: the depluming mite which is intensely irritating and causes loss of feathers particularly of the rump, neck, abdomen, and legs; the northern fowl or feather mite, which lives among the chicken's feathers and causes severe irritation and scabby skin; the air-sac mite, which inhabits the air sacs and other cavities in fowls; and the flesh mite, which causes small white lumps or nodules just beneath the skin tissues.

Control

The air-sac and flesh mites are of little importance and effective remedies for them are not known. The depluming mite and the northern fowl or feather mite spend their entire lives on the birds and can be controlled quite readily by use of a sulphur dip, using one pound of wettable sulphur to ten gallons of water. Dipping should be done on a warm day, and a special effort made to wet the skin thoroughly. It is advisable to treat a second time in eight to ten days. If wettable sulphur cannot be secured, a dip made of two ounces of flowers of sulphur, one ounce of soap, and one gallon of water may be used. Dusting with sulphur probably would be at least fairly effective. Another control for the depluming mite is the use of sulphur ointment rubbed into the irritated areas around the base of the feathers. The feather mite can be controlled by applying nicotine sulphate in a narrow band along the top of each roost shortly before the fowls go to roost; three applications at three-day intervals are necessary. (10M)