

## **Bio-FLYEX**

### **MAGGOT AND FLY CONTROL**

#### **TO SPREAD ON LITTER TO CONTROL & ERADICATE FOR USE IN ANIMAL SHEDS AND POULTRY FARMS**

#### **INTRODUCTION**



House flies, soldier flies and other non-biting flies can and often do become a problem in poultry buildings. They do not bite or feed on the birds but may carry pathogens because of their habit of feeding on manure, dead birds and other waste materials.

Poultry manure is an excellent development material for fly larvae. Caged layer operations concentrate a large amount of manure in a relatively small area and therefore create an ideal situation for producing many flies. Flies and odor coming from poorly managed buildings may result in legal action against the producer.

#### **Poultry Lice**



Poultry lice are small, wingless insects with chewing mouthparts. The most common in Nebraska are brown chicken lice and chicken body lice. Less important are large chicken lice, shaft lice, chicken head lice, fluff lice, and several other species which are rarely present.

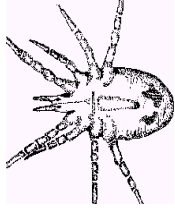
Poultry lice chew dry skin scales and feathers; they do not suck blood. Irritation from louse mouthparts and movement on birds causes appetite loss, weakened condition and susceptibility to diseases. Egg production is reduced, and heavily infested birds refuse to eat and gradually lose weight. Lice can be observed moving on the skin when feathers are parted, especially around the vent, head and under wings.

#### **Poultry Mites**



Several kinds of mites attack poultry. The most common are chicken mites and northern fowl mites. Occasionally scaly-leg mites are a problem.

Chicken mites feed at night. During the day they stay in cracks around roosts and interior portions of poultry houses. At night, they feed on the birds as they roost or nest. Chicken mites are very small, grey to yellow in color, but darken after filling with blood. Control of chicken mites is directed more to their hiding places in houses than to the birds.



Northern fowl mites remain on poultry. They are very small, red or brown. Feathers are discolored by excrement and eggs, and the skin is scabby. Control of the northern fowl mites must be directed to the birds.

Chicken and northern fowl mites suck blood, resulting in emaciation and lowered egg production. Continued heavy infestations can kill the birds.



Scaly-leg mites burrow under the skin, especially on the lower legs and feet. Legs become scaly, swollen, and exude lymph. Severely infested birds may be crippled or unable to walk. In addition to treating with insecticides, legs may be dipped in a mixture of raw linseed oil, 2 parts, and kerosene, 1 part.

## Bedbugs



The common bedbug and several other closely related insects feed on poultry. They are flat, wingless, bloodsucking insects about 1/5 inch long when fully grown and have a very distinctive pungent odor when crushed. Bedbugs feed at night, hiding and laying eggs behind insulation, in wall cracks, loose boards, nests and other dark areas during the day. At night they move to sleeping birds and suck their blood. Small, dark fecal dots around cracks, roosts, and on eggs are observed frequently.

Bedbugs can be carried into poultry houses by other birds; they also can be carried from poultry houses into human dwellings and become a pest of people. Control must be directed inside the housing, using the materials suggested for residual fly control. (See Table III.)

## Flies



House flies are the most persistent and common pest, although other species such as blow flies and little house flies are present. House flies do not bite poultry, but are severe nuisances, and can spread some poultry diseases. House flies are present because of poultry manure and exposed wet feed, which are ideal breeding materials. Manure management is most important for house fly reduction

Manage manure under caged birds so the moisture content is reduced to allow coning (approx. 35-40% moisture). If manure can't be dried, spread it in the fields every 5 days. In liquid manure pits, the manure should be liquefied rapidly to reduce fly breeding. Manure that remains partially solid in pits creates an ideal breeding site. In some management practices, agitating the liquid in pits has greatly reduced fly breeding.

Chemical controls are valuable, but should be considered secondary to manure management practices. Many poultry operations use a combination of good manure management and one or more of the chemical controls .

Effective and economical fly control depends on:

- 1) good sanitation practices to remove fly breeding areas,
- 2) proper use of insecticides to kill adult flies,
- 3) treatment of manure with an insecticide to control maggots if needed, and
- 4) good management practices throughout the year, especially in controlled environment buildings.

### Sanitation



The first, most important step in fly control is prompt and regular removal of waste material where flies breed. Flies lay eggs on wet, decaying material. This includes waste feed, broken eggs and dead birds. The maggots that hatch from these eggs cannot develop in manure or other dry materials.

Keep droppings dry. Repair water leaks, both in water supply lines and building roofs. Soldier fly infestations usually start around the outside of open buildings where rain and snow have blown onto the manure and made it wet.

The caged layer operator has two options available when considering the frequency of manure removal:

- **Weekly removal.** Removing manure once each week during the active fly season (May through October) and throughout the year in controlled environment buildings doesn't allow sufficient time for the maggots to develop into adult flies. Predators and parasites that feed on the eggs and maggots also are removed. Occasional insecticide treatment to control adult flies may be needed.
- **Occasional removal.** The manure is allowed to cone up under the cages and dry and is removed once or twice a year. The predators and parasites develop to their maximum. If manure becomes wet, flies will become a problem. Occasional insecticide treatment to control adult flies may be needed as well as occasional spot treatment of manure to control maggots. Removing the manure from under one row of cages at a time instead of cleaning an entire building will leave a stock of beneficial insects and mites to move into the new manure.

The manure that is removed should be thinly spread in fields, not piled outside the buildings.

If good sanitation practices are followed, less insecticide will be needed and that used will be more effective.



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### **Fly control in open houses**

Acceptable fly control in open houses requires strict attention to sanitation and manure management, supplemented with the use of insecticides as baits, residual sprays and spot treatment of manure for maggot control.

**Baits** consist of an insecticide and an attractant, which serves to draw flies to the insecticide. Start spreading the bait as soon as flies begin to be numerous. Place bait where flies congregate during the day — window ledges, doorways, on the floor between cages, etc.

During the first four or five days, scatter **dry bait** heavily enough that it can be seen. Continue to put out bait each day for the next week, using smaller amounts than for the first application. After the first 10 days, apply bait every two to four days to those places where the most flies were killed during the initial baiting.



To make liquid **bait**, mix the proper amount of insecticide with water and add sugar, corn syrup or molasses. Follow the directions on the container label. Use a sprinkling can to spread the bait on the floor. On a dirt floor or where the floor is dirty, apply the bait on pieces of burlap, cardboard, etc. Apply new, fresh bait every two to four days.

Continue to use bait regularly during the summer. Don't stop as soon as fly numbers are knocked down. If you do and the numbers build up, you will have to start all over again with the heavy initial baiting.

**Residual sprays** leave a deposit of insecticide that the fly contacts when it lands on the treated surface. Residual sprays will remain effective for a few days up to several weeks. Apply the first spray around doors and windows, walls, ceilings and rafters in late spring or early summer as soon as flies begin to be a problem. Repeat applications as needed. Apply 1 gallon of spray per 500 to 1,000 square feet of surface. On unfinished wood, brick or concrete surfaces, wettable powder formulations will give longer lasting control than emulsifiable concentrates

### **Maggot control.**

Maggots should not develop in manure that is kept dry. If the manure becomes wet, correct the cause of the moisture. If maggots develop in the wet manure, make spot applications of one of the recommended maggot sprays to the infested manure. Apply as a coarse spray or with a sprinkling can. Apply approximately 1 gallon per 100 square feet of surface area.

Maggots are something most people don't like to see in and around their home.

Generally white and resembling a worm or caterpillar

Most maggots have a tendency to "gross out" even the toughest of men. In most cases you will see hundreds if not thousands at one location and the way they move makes it appear as though 10 times as many are actually present. If you have seen them in your garbage or out in the yard, you know the feeling.

Well, this article will help shed some light on this misunderstood insect and then offer various options on how to treat local infestations.

Maggots are almost always the young of some type of insect

Most commonly the young of some specie of fly, maggots could be young beetles, moths or many other local and common insects. Virtually all insects hatch out young which will start its life as a type of worm-like creature. Fly larva – or maggots as they are more commonly known- will almost always be white. They might have a tan, brown or

black head but most people just see white. This is due to the sheer numbers that most people will happen upon when they first find any in or around the home. Since many insects will start out in this form, there is neither common size nor location where they may be found.

Maggots are generally associated with either garbage or a dead animal. However, they can readily feed on almost anything organic This list includes but is not limited to carpeting, wallpaper, pet food, bird seed, pets, couches, clothing, furniture, pet hair, people hair, live animals, plants, fruit, vegetables, cooked meat or food, compost piles and just about anywhere in the home or immediately adjacent to it. Though maggots serve to "recycle" most any type of garbage or other decaying matter, most people don't want them in and/or around the house!

Nature has a way of finding a place for most any living creature and maggots are no different.

They are clearly responsible for the recycling of almost anything which is considered waste. There are even maggots which are so highly specialized that they can only eat certain types of waste. These species are so highly developed that the adult stages will actively seek out the special food requirement their young must have and only when such a food supply is found will they lay their eggs.

Once the eggs hatch, the larva (maggot) doesn't even have to search for food.

Most maggots will feed for a few days to a few weeks depending on species, and then it will migrate away from the food supply to seek a good location to undergo metamorphosis. This is the stage during which the "maggot" turns into the adult. This usually occurs inside a cocoon or shell like case in which the insect will literally transform into an adult

Once this stage is completed - which could take a week, a month or even a year - the adult will emerge with generally only two things in mind: finding a mate and then reproducing.

Since there are many things in and around the home which can serve as food for maggots, all it takes is a fertile adult female laying some eggs and a local infestation can ensue. In general, the faster the food supply is likely to go bad and rot, the faster the life cycle of the maggots which will want to eat it.

For example, over ripe fruit and vegetables may attract several types of flies which will be able to complete their life cycles in under one week. Maggots may only need to feed for a day or two which insures the species will propagate - even if there is only a limited amount of food around on which to feed. On the other hand, fly maggots, like Blow Flies, will feed for a slightly longer time. Generally this type of maggot will feed on dead animals. They are commonly found in homes which had an animal die somewhere inaccessible. This is quite common due to the use of Rodenticide and the mistaken belief that the mice or rats that eat it will "go outside to seek water" or "dry up when they die so they don't release any odor". Nothing could be further from the truth!

In fact, the most common cause of maggot problems in the home is due to flies which have been attracted to the rotting corpse of some animal. And the most common animal they are finding are either rats, mice or squirrels with the most common cause of the animal death being contributed to the use of a rodenticide.

When maggots are found in or around the home, they are usually found in one or two stages. Stage one infestations are when the maggots are found on the food they need to eat. This many times will be a dead animal that has died in the attic, crawl space, under a deck, in the wall or some other area. Once dead, it will begin to decay. This process releases gases and odors which will attract flies and other insects. These insects will start laying eggs on the body and larva could hatch in as little as a day or two. If the dead animal is large enough, the inhabitants of the structure will detect its presence because the smell will become stronger with every passing day. At some point there will be a search for the source of the odor and if the animal is found, don't be surprised to find a lot of maggots as well.

**Feed-through fly control:** Insecticide may be applied to the droppings of caged laying hens by incorporation in the feed. This ensures even distribution in the droppings and is very labor-economical. An adequate batch mill is required for even distribution of the material in large quantities of feed.

## **Bio-Flyex CONTAINS**

1. ACTIVATED CARBON FURTHER TREATED WITH ALUM
2. ACTIVATED ZEOLITE
3. FLY CONTROLLING MICROBES LIKE *B T*, *B B*, *B PUMILUS*, *B SUBTILIS*, *P PUTIDA*, *Pencilium chrysogenum*, *N BACTER*, *NITROSOMONAS*
4. Essentials like Anise Oil, Cedar Oil, Chelating Agents, Chrysanthemum Oil, Citronella Oil, Clove Oil, Emulsifiers, Eucalyptus Oil, Garlic Oil, Jojoba Oil, Lavender Oil, Orange Oil, Peppermint Oil, Rape Seed Oil, Surfactants, Sweeteners, Thymol Oil and Tulsi Oil.
5. ORGANIC ACIDS
6. pH REDUCING MICROBES LIKE *ACETOBACTER XYLINUM*, *CITROBACTER*, *B. MEGATERIUM*
7. POTASSIUM MONO PER SULFATE
8. PRECIPITATED SILICA

### **SALIENT FEATURES OF THE PRODUCT**

- To control fly and maggots
- To improve decomposition
- To reduce pathogens
- To remove bad odor.

### **LEVEL OF INCLUSION SUGGESTED:**

In poultry sheds: on litter

Preventive:

500 gm per 10 square meters litter with heap height of 25 cm

ONCE IN 21 DAYS

Curative

DOUBLE DOSE

In Municipal Solid waste Dump yards, Land Fills:

On Fresh Garbage and garbage Handling equipment::

1 Kg per 10 s. meters