

# Pest Solutions

A Strategy for Flea Control





# A Strategy for Flea Control

Fleas are a continuing problem in public health and cases of incomplete control following insecticide treatment are occasionally reported especially at the height of the season. Although it has been suggested that insecticides are losing their ability to kill fleas, poor results are usually due to other causes such as poor preparation of the treatment area.

**It is recommended that pest controllers develop a standard procedure for flea control, which takes account of the actions included in this leaflet.**

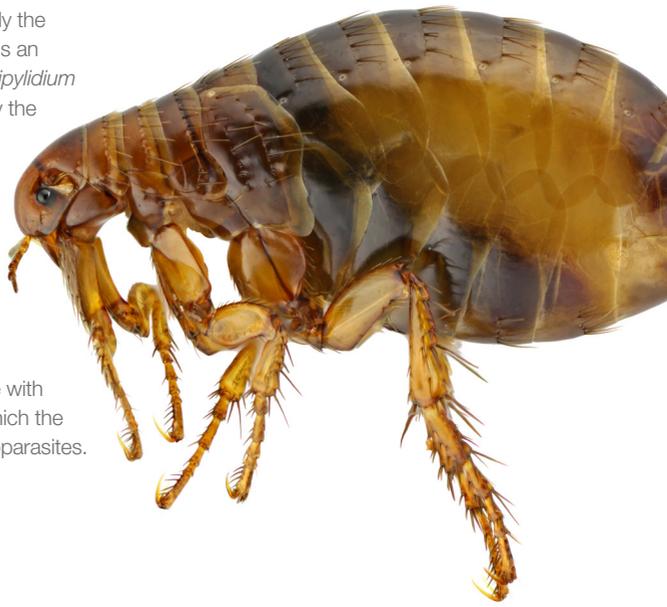
## Importance as a pest

Fleas can be vectors of disease or may transmit parasitic worms. The most serious infection which they can spread is bubonic plague, transmitted to man by rat fleas (*Xenopsylla cheopis*) which carry the causative bacillus from infected rats. In the past rat fleas have been responsible for serious epidemics of the disease, notably the Black Death in Europe and Asia in the 14th to 17th centuries. Rat fleas may also carry murine typhus and, because of their readiness to attack humans as well as rats, are probably the major flea vector of disease. The dog flea is an intermediate host of the dog tapeworm (*Dipylidium caninum*), whose vertebrate host is usually the dog (occasionally the cat) but which can sometimes be transmitted to man.

In Europe fleas are not generally responsible for the transmission of disease. However, they are still objectionable because of the bites they inflict and the deep-rooted social stigma attached to humans with flea infestations. Occasionally psychological problems arise with the induction of delusory parasitosis, in which the victim imagines they are infested with ectoparasites.



Flea bites are identified as a tiny dark red spot surrounded by a reddened area. The bite persists for one or two days and is intensely irritating. First bites are not generally liable to cause serious reactions, but they may lead to hypersensitivity. Reactions are usually delayed following regular biting over a long period; there will then follow a period when reactions are immediate. The cycle then repeats until a state of non-reactivity - immunity - is achieved.





## Areas where found



Adult fleas live exclusively as parasites of warm-blooded animals, especially mammals, although birds may also be attacked. Whilst they show a certain degree of host preference, fleas are by no means specific and will feed on other animals in the absence of the normal host. In fact they tend to be more nest than host-specific, for whilst the adults may feed on the blood of a variety of animals the larvae require more precise conditions which are associated with the habitats and nesting habits of the hosts rather than the characteristics of their blood.

Cat fleas (*Ctenocephalides felis*) are responsible for many flea infestations, the remainder being attributable to a variety of bird and animal species. Human fleas (*Pulex irritans*) infestations are now uncommon. The significance of cat fleas is explained by the increased number of pets being kept and the tendency for their beds to be neglected during cleaning. Wall-to-wall carpeting also provides a relatively undisturbed environment for flea larvae to develop, whilst the spread of central heating has served to ensure ideal temperature conditions.

## Lifecycle



Flea eggs are about 0.5mm long, oval, pearly-white in colour and are laid indiscriminately in the fur or feathers of the host or in its nest or bedding. They do not adhere to the host but readily fall from the animal, are shaken or scratched off. The same applies to the dark coloured faeces of the adult fleas thus creating the black and white - salt and pepper - effect associated with flea infestations. Four to eight eggs are laid after each blood meal and a single female may produce 800-1000 eggs during her lifetime, which may be as long as two years.

The eggs hatch in about one week to give white, threadlike, legless larvae 1.5mm long.

These are distinguished by an identifiable, usually brownish head without eyes; jaws adapted for biting; three thoracic segments and 10 abdominal segments all equipped with bristles; and peg-like processes on the terminal abdominal segment. The larvae thrive in dark, humid places such as animal bedding and carpet fluff, and feed on organic debris and adult flea excrement. The latter forms a valuable part of the diet as a source of blood, which some larvae, while not attacking the host, require for their development. Larvae may also be predacious, living on small and weak arthropods. Cats' bedding may support a flea population of 8000 immature and 2000 adult forms. A typical flea infestation may be composed of adults 5%, larvae 35%, pupae 10% and eggs 50%.

After 2-3 weeks, by which time they will have moulted twice and be about 5mm long, the larvae spin silken cocoons, incorporating debris, in which to pupate. The cocooned larvae then moult within three days to give the pupae which are initially creamy-white but change to dark brown as they mature to become adults. This phase is the inactive stage and the flea may overwinter in this state. The adult flea will then be stimulated to emerge by the vibrations set up by a passing host. This explains the occasional mass attacks which take place in deserted premises.

The development cycle from egg to adult is normally completed in 4 weeks but at low temperatures will take much longer.





## Procedure for identifying and control



### 1. Survey

Survey the problem to identify the focus of infestation. Identify the flea species causing the problem. Insect monitoring points may help determine location and species of flea infestation. This may enable the primary host to be identified. Where animals are involved request occupiers to identify the areas frequented by the animals; these are likely to be seats of infestation.

### 2. Pre-Treatment Preparation

Before treatment ensure:

2.1 Floors and upholstered furniture are vacuumed to remove animal hair, organic debris and the various forms of fleas. The vibration caused by vacuuming will also stimulate adults to emerge from the inactive pupae rendering them vulnerable to insecticide residues. In extreme situations it may be necessary to steam clean infested areas.

Particular attention should be given to the areas where animals have been allowed to roam and rest e.g. under furniture, under chairs and sofa cushions, cracks and crevices in floors and along walls. The vacuum cleaner bag or drum will contain flea eggs and pupae etc. so should be disposed of in an outside waste bin.

- 2.2 Articles are removed from the floor so the entire surface can be treated.
- 2.3 Tile and concrete floors should be swept and washed or vacuumed.
- 2.4 Pet bedding should be disposed of or washed in hot soapy water to eliminate immature and adult fleas. Bird and animal nests should be destroyed if they have been identified as the focus of infestation (subject to any statutory protection of the wildlife involved).

2.5 Always advise pet/animal owner to treat animal with an appropriate flea control product, for example, Advantage by Bayer. This gives the best chance of complete control as both property and animal have been appropriately treated.

### 3. Treatment

Treatments should consider:

#### 3.1 Interior:

Floor areas should be thoroughly sprayed with a residual insecticide e.g. K-Othrine® WG 250 or Ficom® W, according to label directions. Insecticidal powder, aerosol or smoke treatments may also be useful e.g. Ficom® D or Coopex® Smoke Generators.

Insecticide residues should be left undisturbed for as long as possible to ensure maximum residual activity.





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### 3.2 Exterior:

Consider treatment of the building perimeter and/ or sub floor where appropriate with a residual insecticide spray or powder (always refer to the product label).

3.3 Use rodenticides where rats and mice have been identified as primary hosts.

### 4. Advice to occupier.

Advise the occupier that fleas may be observed after treatment as they hatch from eggs or emerge from pupae and so elimination should not be expected for at least ten days.

## CHECKLIST FOR CONTROL

### \* SURVEY

- Define the extent of the infestation . . . . . ✓
- Identify involvement of animals . . . . . ✓

### \* PRE-TREATMENT

- Clean thoroughly . . . . . ✓
- Remove articles from the area to be treated . . . . . ✓
- Pet owner treat animal, as appropriate . . . . . ✓

### \* TREATMENT

- Interior . . . . . ✓
- Exterior. . . . . ✓

### \* ADVISE OCCUPIER

- Expectations for control . . . . . ✓
- Further actions . . . . . ✓



Contact the Pest Solutions team with your questions at [pestsolutions@bayer.com](mailto:pestsolutions@bayer.com) or on 00800 1214 9451.

## Recommended products for effective Flea Control



### K-Othrine WG 250

K-Othrine WG 250 is a water dispersible broad spectrum insecticide with long term residual activity



### Ficam W

Ficam W is a residual broad spectrum spray control of a wide range of insect pests



Contact the Pest Solutions team where you can request copies of the product user guides on 00800 1214 9451 or [pestsolutions@bayer.com](mailto:pestsolutions@bayer.com)

[www.environmentalscience.bayer.co.uk](http://www.environmentalscience.bayer.co.uk)

ALWAYS READ THE LABEL AND PRODUCT INFORMATION BEFORE USE. PAY ATTENTION TO THE RISK INDICATIONS AND FOLLOW THE SAFETY PRECAUTIONS ON THE LABEL.

## My pest controllers details:

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