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Fleas[1]

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External parasites are generally found on or in the skin and are important pests because they bite or annoy both humans and their pets. Fleas, mange mites, and ticks are the most frequently encountered and most troublesome pests that attack humans and their pets.

Fleas are small (1/16"), dark, reddish-brown, wingless, blood-sucking insects. Their bodies are laterally compressed, (i.e., flattened side to side) permitting easy movement through the hairs on the host's body. Their legs are long and well adapted for jumping. The flea body is hard, polished, and covered with many hairs and short spines directed backward. The mouthparts of an adult flea are adapted for sucking blood from a host.

Several species of fleas may be pests in Florida, and five kinds have been found on a single animal. The cat flea (Figure 1) is the most frequently found flea, although the dog, human, and sticktight fleas are also found in Florida. Fleas may attack a wide variety of warm-blooded animals including dogs, humans, chickens, rabbits, squirrels, rats and mice.

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Figure 1. Cat flea adult.

Biology

The female flea lays her tiny, white eggs (Figure 2) loosely on the hairs, in the feathers, or in the habitat of the host. The eggs readily fall off the host onto the ground, floors,

bedding, or furniture. Some fleas can lay 500 eggs over a period of several months by laying batches of three to eighteen eggs at a time. The tiny eggs hatch in one to twelve days after being deposited. The white, worm-like larva (Figure 3) avoids light and feeds on particles of dead animal or vegetable matter generally present in cracks and crevices. Within 7 to 14 days, unless food has been scarce, the third larval stage is completed, and the larva spins a tiny cocoon (Figure 4) and pupates. Usually after a week the adult flea emerges and begins its search for blood.

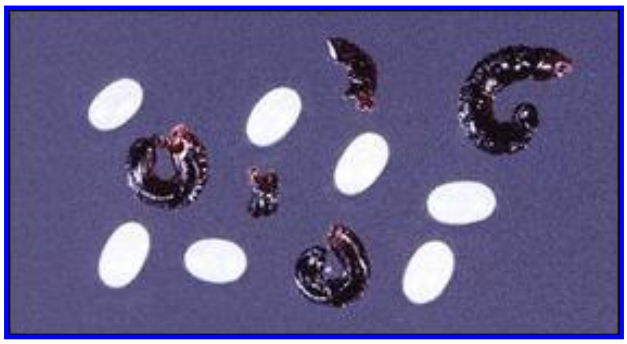

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Figure 2. Flea eggs and feces.

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Figure 3. Flea larvae.

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Figure 4. Flea cocoons.

Fleas are known to remain in the pupal stage from five days to five weeks in the absence of hosts. Adults emerge from the pupal case when vibrations from pets or humans let them know a host is near. This is one reason why people returning to an unoccupied home may suddenly be attacked by an army of fleas.

Adult fleas must feed on blood in order to reproduce; however, adults can live for long periods without feeding. Fleas usually live and breed most heavily where pets rest. Persons coming near these resting places are also subject to attack. If fleas are established in a home, they will feed on man as well as on the pets. The usual places of attack are the ankles and lower portions of the legs.

The so-called "sand-flea" is nothing more than a common flea that is breeding outdoors in the soil. Contrary to belief, fleas cannot go through several generations without having a blood meal.

The entire life cycle (Figure 5) of a flea can require from two weeks to two years. Hot, wet, summer months favor egg laying. Hot, dry periods give maximum adult production, so greatest adult flea populations are produced in August to September.

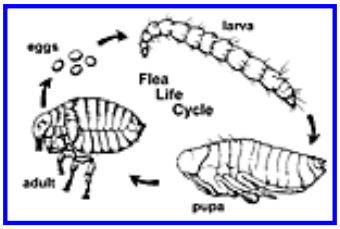

Figure 5. Flea life cycle.

Importance

Fleas often breed in large numbers where pets and other animals live. Pets infested with fleas bite and scratch themselves constantly. Their coats become roughened and the skin can become infected. Symptoms of sensitized hosts are often mistaken for mange. Cat fleas and dog fleas may be intermediate hosts for the dog tapeworm.

Some people suffer more than others from flea bites. The bites can cause intense itching often resulting in secondary infection. The usual flea bite has a small red spot where the flea has inserted its mouthparts. Around the spot there is a red halo with very little swelling. Many people do not react to flea bites at all while others are sensitive and suffer severe allergic reactions. Fleas may also vector such human diseases as plague, typhus, and tularemia.

Control

Flea control is difficult for pet owners to implement because two things must be done: (1) treat the pet and (2) treat the premises. Pet treatment alone is not sufficient because *the animal quickly becomes reinfested* from untreated premises.

Humans are often bitten by fleas when they enter infested areas. Repellents can be applied in order to keep fleas from biting. Repellents registered for fleas are listed in Table 1.

Table 1. Repellents labeled for flea management.*

Common Name	Homeowner Product*
Deet	Cutter (28.5%) Cutter (Family) (6.65%) Muskol (25%) Off (14.25%) Off (Deep Woods) (28.5%) Repel (23%) Sportsman (29%) Ultrathon (23.75%) Ultrathon Lotion (31.0%)
Permethrin	Hot Shot (0.15%) **(clothes only)**
**Read label carefully to insure pest, site and commodity are listed prior to applying product. Some product labels are very restrictive.*	

Pet Treatment

Flea collars are sold under several trade names and are sometimes effective on small, short-haired dogs or cats that are not subjected to flea-infested areas.

Other treatments are usually necessary to supplement flea collars on large, long-haired pets that are allowed freedom outdoors. Also, some pets may be allergic to flea collars. Ultrasonic flea collars have not been found to kill or repel fleas.

Veterinarians may prescribe or apply pesticides not available over the counter. Oral flea medication prescribed by veterinarians has provided control of fleas when pets are not allowed outdoors and effective flea control is accomplished in the house and yard. Topical or spot treatment has provided effective residual control.

Pets may be combed or shampooed frequently to remove adult fleas before they can irritate the pet or lay eggs. Frequent removal of fleas can quite effectively reduce flea infestations.

To be certain pets remain free of fleas, it is necessary to make routine use of flea control

products, especially if pets are allowed to contact infested animals or premises.

Dust treatments should be applied carefully and rubbed into the fur working from the head to the tail. Special attention should be given to the top of the head, the neck, and the back. Apply treatments outdoors so fleas that leave the animals do not remain indoors.

Premise Treatment

Pets become reinfested with fleas from premises. For the most effective control, sleeping areas, bedding kennels, and other areas frequented by the animal should be treated at the time the pet treatment is made. Treatments may or may not include the use of pesticides.

Nonpesticidal premise control includes thorough and frequent cleaning of the house. All rugs should be thoroughly cleaned with a vacuum cleaner or a steam cleaner. Infested furniture, pet baskets, and cracks should be thoroughly cleaned to prevent the larvae from finding food. Dirt which is collected should be disposed of immediately to destroy fleas and flea larvae.

Many people remove pets from the home to attempt flea control. Flea infestations usually become more evident when pets are removed. Although, the hungry adult fleas prefer to feed on cats and dogs, when the pet is removed, the fleas overrun the home, frequently attacking humans. Dogs and cats can be used to attract fleas from the premises. Recommended pet treatments at frequent intervals can be used to kill the fleas.

Insect growth regulators (IGRs) are the most effective chemicals and are found in some indoor, space, and surface treatments. Common IGRs are methoprene, hydroprene, and piriproxyfen. These may be used in conjunction with residual sprays to quickly reduce adult populations. IGRs prevent flea larvae from turning into adults, and have a residual effect of almost three months. For IGR applications to be effective, pets must not be allowed access to heavily infested areas outdoors; otherwise adult fleas will constantly be carried indoors by the pet.

Insecticides should be applied inside the house carefully as light, spot treatments to areas where fleas are known to be hiding. These can be applied indoors as crack and crevice or surface treaments (see Table 2). For heavy infestations indoors, or when egg masses of ticks hatch, space sprays can be applied to give quick knockdown (Table 3). Outdoors, infested areas should be treated by applying a broadcast treatment of insecticide to the landscape (Table 4). Special effort should be given in treating areas frequented by pets. Applications at 2-4 week intervals may be necessary to eliminate the ticks. Pets should be kept off treated surfaces until dry. Apply products according to label directions. Do not apply these products directly to pets.

Tables

Table 2. Flea management products labeled for indoor surface or crack and crevice treatment.*

Common Name	Homeowner Products*	Commercial Products*

Beta-Cyfluthrin	Bayer Power Force Carpenter Ant & Termite Killer Plus	
Bifenthrin	Ortho Home Defense Perimeter & Indoor Insect Killer	
Deltamethrin		DeltaDust Suspend SC Insecticide
Methoprene		Precor Precor 2000 Premise Spray II
Permethrin	Ortho Bug-B-Gon Multipurpose Garden Dust	Dragnet SFR Termiticide/ Insecticide
Pyrethrins		Kicker PT Tri-Die Silica & Pyrethrum Dust PT ULD BP-300
Pyrethrins and Others		PT 565 Plus XLO PT Microcare CS Controlled Release Pyrethrum PT Microcare Pressurized Pyrethrum Capsule Suspension PT Pro-Control PT Pro-Control Plus PT Tri-Die Pressurized Silica & Pyrethrin Dust PT ULD BP-100
Pyrethrins, MGK-264, Permethrin	Ortho Ant-B-Gon	

Pyrethrins, PBO		PT P.I. Contact Insecticide Pyrenone 50 Pyrenone 100 Synerol Insecticide
Tau-Fluvalinate		Yardex Supplemental Labeling
Tetramethrin, Phenothrin	Ortho Flying Insect Killer 1	
Tralomethrin		Saga WP Insecticide
*** Read label carefully to insure pest, site, and commodity are listed prior to applying product. Some product labels are very restrictive.**		

Table 3. Flea management products labeled for indoor space treatment.*

Common Name	Homeowner Products*	Commercial Products*
Hydroprene		TurboCide Gold with Gentrol
Pyrethrins		PT ULD BP-300
Pyrethrins and Others		PT Pro-Control PT Pro-Control Plus PT ULD BP-100
Pyrethrins, PBO		Pyrenone 100 Synerol Insecticide
Pyrethrins, Permethrin	Ortho Indoor Insect Fogger	
*** Read label carefully to insure pest, site, and commodity are listed prior to applying product. Some product labels are very restrictive.**		

Table 4. Flea management products labeled for outdoor treatment.*

Common Name	Homeowner Trade Name*	Commercial Trade Name*
Beta-Cyfluthrin	Bayer Power Force Carpenter Ant & Termite Killer Plus	
Bifenthrin		Talstar CA Granular Insecticide Talstar F Insecticide/Miticide Talstar GC Granular Insecticide Talstar Termiticide/ Insecticide
Cyfluthrin	Bayer Advanced Home, Home Pest Control Indoor & Outdoor Insect Killer Bayer Advanced Lawn & Garden Multi-Insect Killer Bayer Power Force Ant Killer Ready-to-Use Granules Bayer Power Force Multi-Insect Killer Ready-to-Spread Granules	Tempo 20 WP Tempo SC Ultra
Deltamethrin		Suspend SC Insecticide
Esfenvalerate	Ortho Bug-B-Gon Multipurpose Insect Killer	
Permethrin		Astro Insecticide Dragnet SFR Termiticide/ Insecticide
Pyrethrins		Kicker
Pyrethrins and Others		PT Microcare CS Controlled Release Pyrethrum
Pyrethrins, PBO, Silica Gel		Drione
Tralomethrin		Saga WP Insecticide

*** Read label carefully to insure pest, site, and commodity are listed prior to applying product. Some product labels are very restrictive.**

Footnotes

1. This document is ENY-205, one of a series of the Entomology and Neamatology Department, Florida Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida. Date first printed July 1993. Revised: February 2003. Please visit the EDIS Web site at **http://edis.ifas.ufl.edu**. Additional information on these organisms, including many color photographs, is available at the Entomology and Nematology Department website located at **http://entnemdept.ifas.ufl.edu**.

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