

## Flea Control 2003

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### INTRODUCTION



*Fleas are the most common external parasite of companion animals.* Flea allergy dermatitis is the most common skin disease of dogs and cats! Flea control has always been a challenge for veterinarians and pet owners because the adult fleas cause the clinical signs, yet the majority of the flea population (eggs, larvae and pupae) are to be found off the pet in and around the home. The ideal flea control program utilizes products that target the various stages of the flea life cycle, not only the adult fleas on the pet. In order to help you to select the most appropriate products to achieve a flea-free existence for an allergic pet, we will start by telling you about the life cycle of the flea.

### THE LIFE CYCLE OF THE FLEA *Ctenocephalides felis*



Eggs are laid in the hair coat and are designed to fall off the host. They are resistant to insecticides, but susceptible to various *Insect Growth Regulators*. Larvae develop in the host's environment and feed on adult flea feces (blood) that fall out of the hair coat of the pet. Larvae are susceptible to traditional insecticides, borates and insect growth regulators. Larvae eventually spin cocoons (often within carpet fibers) for pupation. Pupae are resistant to freezing, desiccation, and insecticides. Pupae can lie dormant for many months; they are stimulated to expupate as emergent adults by vibration, warming and increased CO<sub>2</sub>. Normally, expupation occurs when a host is near and the new flea finds the pet within seconds of emergence. Emergent fleas are fairly mobile and can survive a few days without a host, if in a suitable environment. New fleas begin feeding within hours of finding a dog or cat. Once a blood meal has been taken, the flea can survive only a short time if it is dislodged from the host. New fleas experience very high mortality on healthy adult hosts. Most fleas do not survive 72 hours on an animal that is itching and able to groom itself. Unfortunately, limited egg production does occur even on allergic animals. **The entire life cycle of *C. felis* can be completed in as few as 16 days!**

### FLEA CONTROL RECOMMENDATIONS

*For the flea allergic patient 100% flea control is required to remain symptom-free.* Even very minimal exposure may be sufficient to perpetuate itching in a hypersensitive patient (one or 2 bites per week are enough!). Until very recently, veterinarians and pet owners have had to control fleas by treating the environment of the animal for the immature stages of the flea. This approach, although effective when properly instituted, is labor intensive and requires frequent repetitive applications. Application of adulticides on the animal has merely been of palliative value. The safe insecticides previously available to us did not kill fleas instantly or

were not long-lasting enough to ensure adequate protection from flea bites. The female flea survived long enough to lay a few eggs and perpetuate the life cycle.

## **TODAY'S FLEA CONTROL PRODUCTS**

Recently, some new products have been added to our flea control arsenal. These appear to be highly efficacious, long lasting and have a very low potential of harmful side effects. It may well be that these promising products will revolutionize flea control in the United States.

### **PROGRAM® and SENTINEL® (LUFENURON) from Novartis**

This is available as a *once a month* pill or oral liquid suspension to be given with a full meal. These are prescription drugs. Adult fleas that feed on animals treated with lufenuron produce sterile eggs. *The product does not kill adult fleas.* It is a very easy way to break the life cycle but pets remain fully susceptible to the emergence of any fleas from pupa already present in the environment. Therefore, *4 -7 months may pass before the flea-free state is reached.* In order to stop the life cycle, every animal in the patient's environment must receive lufenuron. Pets should be sprayed for fleas with an adulticide during the first few weeks of starting Program®.

### **NYLAR® (PYRIPROXIFEN)**

This is a new *insect growth regulator* that is extremely effective against flea eggs. It remains 100% effective for 150 days after a single spray application! It is an excellent option in cases when Program® may be too expensive because of a multiple pet household or in situations where Program® is ineffective. It is presently available as a spray-on and as a drip-on in combination with permethrin for dogs and a spray with pyrethrins for cats and also as Nylar flea control collars for dogs and cats. Environmental foggers and sprays are also being marketed.

## **TRADITIONAL INSECTICIDES**

Several adulticides insecticides or shampoos can be used along with Program® or Nylar®. Shampoos are considered inferior to sprays, dips or drip-ons because they have little to no residual activity. For cats, pyrethrins as sprays or foaming mousses are useful. Examples include *Mycodex Fast Act®* and *Fast Act 2®* (these products have a reduced level of alcohol which is much more easily tolerated by cats). For dogs, permethrin sprays are recommended.

### **ADVANTAGE® (IMIDACLOPRID) from Bayer**

This is marketed as a *drip-on* for both dogs and cats. Advantage® seems to be very well-tolerated by sensitive cats. It provides flea knockdown in 24 hours. For cats, 100% killing can be maintained for 21 days; for dogs 90% for 28 days. It is susceptible to wash off, therefore outdoor active dogs and dogs that swim or must be bathed

because of dermatitis must be re-treated frequently. (Weekly re-treatment is allowed). Imidacloprid has no efficacy against ticks.

**FRONTLINE® SPRAY, FRONTLINE PLUS® and FRONTLINE TOP SPOT® (FIPRONIL) from Merial**

Fipronil is a broad spectrum insecticide available as a spray or a drip-on. Fipronil binds chemically to the hair and is absorbed through the hair follicle by the sebaceous glands. In spray formulation fipronil kills fleas at 95% for over 80 days after application on dogs and for 1 month with biweekly bathing. It is labeled for puppies and kittens of 8 weeks (10 weeks for Top Spot®) and the product is not washed off by bathing. It is also affective against ticks. The major problem with the spray is the high volume of alcohol-based product that must be applied. Many cats will show minor adverse reactions with this application technique. The product must be applied no more than once a month. Frontline Plus® contains the insect growth regulator, S-methoprene and so provides control of eggs and adult fleas.

**REVOLUTION® SELAMECTIN from Pfizer**

This product is designed as a once-a-month heartworm preventive and flea preventive for dogs and cats as young as 6 weeks old. It also kills adult fleas and can be used to treat Sarcoptic mange, ear mites and ticks. It also helps control roundworms and hookworms in cats. The product is placed on the skin at the back of the neck, but is absorbed into the body to have its effect when female fleas ingest it with a blood meal. Adult fleas will die slowly, but more importantly, any eggs laid prior to death will never develop. It is most useful as a preventive for flea infestation and in the presence of a flea problem in an allergic pet, other insecticide treatment will be recommended at first. It is a prescription drug.

**CAPSTAR® NITENPYRAM from Novartis**

This is a an oral tablet for dogs and cats as young as 4 weeks of age. It offers extremely rapid and complete killing of adult fleas on the pets after administration. It is safe enough that the tablets may be used as needed, as often as once per day, whenever you see fleas on your pet. This is designed to be used in combination with an insect growth regulator to knock out fleas when these slower products are being used for long-term control It can also be used when the pet has visited a flea-infested environment for rapid protection.

We recommend for your pet:

**TopSpot® or Frontline Plus®.** Once a month. Dispensed according to weight -- one vial against the skin between the shoulder blades. For dogs over 88 pounds, use combinations of weights and two vials per treatment. Wear gloves to apply.

**Revolution®** Dispensed according to weight. Contents of one or two vials against the skin between the shoulder blades once a month.

**Program®**. Once a month pill/vial for each animal in the household.