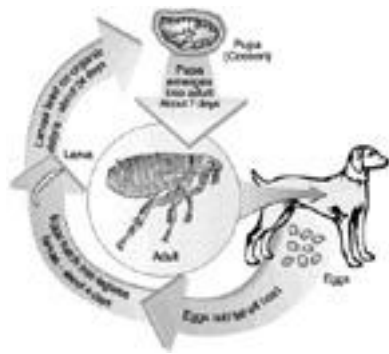


FLEA CONTROL 2008

LSU VTH&C Dermatology service

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 CO₂. 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 continuous excellent flea control is required to remain symptom-free. Even very minimal exposure may be sufficient to perpetuate itching in a hypersensitive patient. In the past, veterinarians and pet owners always had to try 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. Also, some of the older products made for killing fleas on our pets do not kill fleas instantly or are not long-lasting enough to really help flea allergy patients, because the female fleas survived long enough to lay a few eggs and perpetuate the life cycle.

TODAY'S FLEA CONTROL PRODUCTS

Today, veterinarians have some great flea control products in our arsenal. There are now several highly efficacious, long lasting and very safe new products to choose amongst.

PROGRAM® and SENTINEL® (LUFENURON) from Novartis

These prescription drugs are available as a *once a month* flavored chewable (soy and pork) pill or oral liquid suspension to be given with a full meal. Female fleas that feed on pets 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 or another insect growth regulator. Pets should be treated for fleas with an adult flea-killing product during the first few weeks of starting Program®.

NYLAR® (PYRIPROXIFEN)

This is a relatively 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 is included in the new product line, Vectra®. Environmental foggers and sprays are also being marketed and many professionals use this chemical for home treatments.

ADVANTAGE® (imidacloprid), K9 ADVANTIX® (with permethrin) Advantage Multi® (with moxidectin) from Bayer

These products are available as a *spot-ons* for either dogs and cats. Advantage Multi® is a prescription drug that also is a heartworm preventive. Advantage® seems to be very well-tolerated by sensitive cats. It provides flea knockdown in about 8 hours. 100% killing can be maintained for at least two weeks. It is susceptible to wash off, therefore outdoor active dogs and dogs that swim or that must be bathed because of dermatitis must be re-treated frequently. (Weekly re-treatment is allowed with Advantage only®). Imidacloprid has no efficacy against ticks, but K-9Advantix®, with permethrin does. K9 Advantix is only labeled for once a month, and ONLY FOR DOGS.

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 may kill fleas at 95% for up to 30 days after application on dogs and stands up to biweekly bathing. It is labeled for puppies and kittens of 8 weeks (10 weeks for Top Spot®). 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 is labeled to 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 prescription drug 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, female fleas stop egg production as soon as they are exposed. It is most useful as a preventive for flea infestation and in the presence of a flea problem in an allergic pet, but it is an excellent flea control product for cats.

CAPSTAR® (nitenpyram) from Novartis

This is a prescription 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. When given every-other-day, it is a useful flea control for single cat households.

COMFORTIS ®for Dogs (spinosad) from Elanco Animal Health Division of Eli Lilly

This monthly prescription tablet for fleas represents a completely new class of drugs in flea control. *It is available for use on puppies and dogs 14 weeks of age or older and is available in 5 different sized flavored (soy and pork) chewable tablets.* It is meant to be used once a month and preliminary results show it will be very useful for flea allergic pets as it has a very rapid kill rate.

PROMERIS For Cats® (metaflumizone) from Fort Dodge

This product is a spot-on application which causes fleas to cease feeding, become paralyzed, and die within 48 hours. It binds to hair and skin surface, and so will stand up to some shampooing. It can be administered at 4 to 6 week intervals. *Do not use on kittens under 8 weeks of age. Do not allow animals to groom each other following application.* Product may produce a local, temporary, oily appearance and clumping or spiking of the hair at the application site and the volume of application is rather large as disadvantages. However, it represents another completely new class of insecticides for flea control so will be useful where fleas have become resistant.

PROMERIS DUO for Dogs® (metaflumizone/amitraz) from Fort Dodge

This product is a spot-on application which causes fleas to cease feeding, become paralyzed, and die within 48 hours. The addition of amitraz provides efficacy against ticks and some mites. It should be administered monthly for optimal control of flea and tick infestations. The product remains effective if the animal becomes wet. However, prolonged, intense exposure to water should be avoided. This product prevents flea infestation for up to 6 weeks and tick infestation for 4 weeks. *Do not use on puppies under 8 weeks of age. Do not administer to cats, sick or debilitated dogs or animals suffering from heat stress. Do not administer to pregnant and lactating animals.* This product represents another completely new class of insecticides for flea control so will be useful where fleas have become resistant.

VECTRA 3-D for Dogs® (dinotefuran, permethrin, pyriproxifen) from Summit Vet Pharm
This product is a monthly spot-on application for flea, tick and mosquito control with an insect growth regulator. It provides long-lasting repellent, and is a fast acting adult flea killer that also provides control for the egg stage of the flea for at least 30 days. Permethrin is added to provide tick control and as a repellent. Pyriproxifen (Nylar) is added for flea egg control (See above.) Water and shampooing lowers efficacy after 14 days. *Do not use on cats* (because of the high concentration of permethrin). This product is fast-acting and should be very useful for households with flea allergy patients.

VECTRA for Cats® (dinotefuran, pyriproxifen) from Summit Vet Pharm
This product is not on market currently, but soon to be introduced.

ABOUT TRADITIONAL INSECTICIDES / Over-The-Counter FLEA CONTROL PRODUCTS

Several adulticide insecticides or shampoos are available and some have insect growth regulators such as s-methoprene included. Shampoos are less effective than sprays, dips or spot-ons because they have little residual activity. For cats, pyrethrins as sprays or foaming mousses may be useful for safe, quick knock-down of fleas. For dogs, permethrin sprays or spot-on products with methoprene or Nylar may be effective, but cats **MUST NOT BE EXPOSED** directly or indirectly to permethrin products. There is some resistance in fleas to permethrin products now documented. Over-the-counter products with etofenprox and S-methoprene can be used but only with caution in cats and may be effective in some settings but are not fast enough for good results in flea allergy.



We recommend for your pet:

_____ **Frontline®**. Once a month. 1-2 pumps/lb of the 250 ml bottle or 3-6 pumps/lb of the 100 ml bottle. Wear gloves to apply. Ensure that the hair coat is completely wetted. Do not bathe for 48 hours after application.

_____ **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.

_____ **Advantage®**. Once a week to once a month. Dispensed according to weight. Contents of one or two vials against the skin between the shoulder blades. Repeat application after each bath up to once a week.

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

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

_____ **Capstar®**. Every Other Day to Once a Week pill to be combined with Program or Sentinel or for use when flea exposure is anticipated

_____ **Comfortis ®for Dogs**. Once a month pill. Dispensed according to weight.

_____ **Promeris For Cats®**. Administered at 4 to 6 week intervals. Dispensed according to weight.

_____ **Promeris DUO for Dogs®**. Administered at 4 to 6 week intervals. Dispensed according to weight.

_____ **Vectra 3D for Dogs®**. Once a month. Dispensed according to weight.

_____ **Vectra 3D for cats®** Not yet available..

Additional recommendations:

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