

This past week we have had several calls on fleas. It is that time of the summer! Obviously, fleas seem to be doing well currently. A few reasons may include: increased summer temperatures accelerating the flea's life cycle, increases in feral cat or other wildlife populations, and potentially increased insecticide resistance to veterinary market prophylaxes for fleas on pet dogs and cats. We wanted to review some basic elements of flea biology, behavior and management for you here.

Fleas are ectoparasites, feeding directly on humans or other warm-blooded animals. Usually you or your pet(s) or local wildlife will become the hosts. Fleas usually require warm and humid conditions to develop.

The most common flea is the cat flea, and it can occur on all warm-blooded animals, not just cats. The cat flea ranges in size from 1/12 to 1/6 inches long. They are small and have no wings, and therefore do not fly. Instead, they jump or spring. Their bodies are narrow if viewed from the sides (*said to be laterally compressed*), perfect for a life spent living among hairs. Because their bodies are covered with spines projecting backwards, they are difficult to remove by shaking or scratching. Adult female fleas need a blood meal in order to lay their eggs and they feed on the host's blood. The larvae will eat "flea dirt" consisting of a mixture of dried blood and adult flea feces. Fleas go through a complete metamorphosis, so there will be four distinct stages, including an egg, larva, pupa, and finally, the adult. Flea eggs are laid on the host or are deposited on the floor or within animal bedding/nesting areas. They also are often found in upholstery. A female flea will continue to lay a few eggs every day until she has deposited close to 400 eggs. These eggs will develop into flea larvae within a few days to several weeks, depending upon conditions of temperature and humidity. Flea larvae are hard to spot and are found deep within carpets or cracks and crevices of floors and upholstery. They are very difficult to vacuum, because their spines get caught within carpet fibers. Pupae are small and also hard to spot. Under warm conditions, increased vibrations or the increased presence of carbon dioxide, many adult fleas will suddenly emerge from this protective pupal cocoon within 7 to 14 days. In fact, studies have revealed that fleas are attracted to warmth, vibrations, and carbon dioxide which animals exhale as part of daily metabolism and respiration activities.

The various flea stages will be found most concentrated in the areas that the animal spends most of its time. Proper flea management must cover the infested animal's entire environment, focusing largely on areas where the animal spends the majority of its time; i.e. sleeping/nesting areas and foraging/walking areas.

The best time to start a flea management program is usually in the late spring, prior to an infestation, since adult fleas comprise only a small percentage of the total flea population. A thorough inspection is required. Proper pest identification is also important; be sure it is fleas you are dealing with and not springtails, mites, lice or something else in the account. Springtails are in great abundance this year and look a lot like fleas to the average client. Try to locate the source for the fleas and see if it is throughout the account or localized around a specific area; remember birds, rodents, feral cats, and various wildlife all can host fleas. Check attic, crawl and void spaces that can harbor these animals. Vacuum all surfaces where pets or humans have been. Vacuum before treatment is done and remove and dispose of vacuum bags properly such that no eggs or fleas within the bags can re-infest the areas. Eggs are laid on the pet and drop off as it moves around. All affected pets should also be receiving veterinary prophylaxes or treatment at this time; (otherwise, your efforts will be in vain if the pets or other animals are supporting the flea life cycle and depositing of new eggs, etc. even as you get rid of the adults and current infestation.) Remove all pets from the premises during the

treatment process and according to label compliance procedures for materials being used; (usually several hours for any liquid materials to completely dry on treated surfaces). Use any product of your choosing, provided the site and fleas are on the label; also heed any warnings regarding fish, birds, etc. (It is a good idea to remove birds from the home. Cover or remove fish and tanks, and turn off any re-circulating air pumps.) Also cover and be watchful of all pet water and food dishes in the account. If you also plan to incorporate an insect growth regulator (IGR) in your tank mix with the product of choice, please be aware that IGR's may also negatively affect pet invertebrate animals like hermit crabs, shrimps, snails, etc. Be sure to keep all pet animals out until the material has dried; in compliance with the application material labels.

When dealing with a sensitive account, such as a daycare facility, nursing home or pet store, ask the product manufacturer's representative to participate in the protocol with you. They can provide insight into the product and how it will perform and any other precautionary needs. After the treatment is completed, monitor the account for any future activity; (distinctly placed glue boards may be used for this purpose; *if a glue board ever becomes attached to a pet animal's fur, it can be removed with a little vegetable oil.*) Keep good records, and document, document, document!