



Reduced Chemical Management of Fleas¹

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Non-Chemical Methods of Reducing Flea Populations

Cat fleas (*Ctenocephalides felis*) (Figure 1) are the most common fleas found on both cats and dogs. Flea eggs and adult feces fall off the host and accumulate where the pet rests, making these the prime flea breeding foci. Flea breeding in these areas can be reduced by establishing one sleeping area for the pet, choosing an area that can be cleaned thoroughly on a regular basis, and using bedding material that can be laundered weekly or thrown away as often. If human flea allergy is the cause of the complaint, pets should be excluded from areas of the house frequented by the person(s).

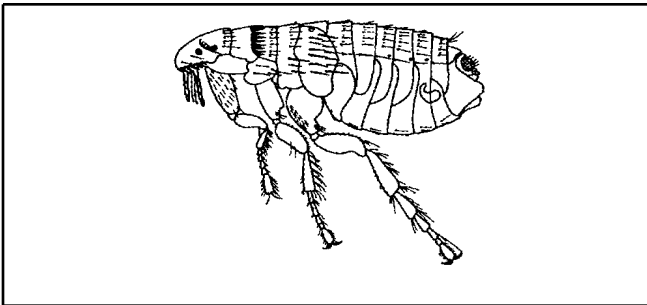


Figure 1 . Flea adult.

Vacuuming flea breeding areas is also beneficial. Byron and Robinson (1986) found that a beater-bar vacuum would remove 15-27% of larvae introduced into a carpet and 32-59% of the eggs. In addition to removing the juvenile stages, vacuuming will also remove adult flea feces, the essential food source for the developing larvae. Pupae appear to be unaffected by vacuuming, because their silk cocoons are tightly bound to carpet fibers. Attachments should be used to vacuum cracks, crevices, and upholstered furniture where pets rest. Vacuuming alone will not remove the entire flea population but will help keep them reduced. The steam-extraction carpet cleaning method should effectively destroy all stages of fleas present.

Combing the pet with a flea comb is an effective but time-consuming method of controlling fleas on pets. It is most effective on cats, especially since cats do not normally tolerate baths. Fleas removed with the comb should be disposed of by dropping them in soapy water (Olkowski et al. 1983). Our experiences have shown that many cats find combing enjoyable. (Especially if you give the cat treats afterwards!)

Bathing a dog with soap, shampoo or a mild detergent can also remove fleas. This method drowns fleas (Olkowski et al. 1983) and the

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lipophilic (oil attracting) nature of detergents should have a drying effect on the surviving fleas. Olkowski et al. (1983) recommended the use of insecticidal soaps such as "Safer Flea Soap for Cats and Dogs" (25% potassium salts of fatty acids).

Flea traps will capture some fleas, but there is no evidence that they do anything to control flea populations. They may have some small value as a sampling tool to confirm infestations. Ultrasonic pest repelling devices have repeatedly been shown to be completely useless (Hinkle et al. 1990, Dryden et al. 1989). The use of leaves from waxmyrtles, such as the southern bayberry (*Myrica cerifera*), have been repeatedly recommended for flea control. Tests on packets of dried bayberry leaves showed no repellent effect on cat fleas (W. H. Kern & R. S. Patterson, unpub. data). The effectiveness of fresh bayberry or other repellent plant materials, such as pennyroyal, eucalyptus, rosemary, or citronella has not been documented (Olkowski et al. 1983).

The mixing of essential oils into shampoo is not recommended and may prove to be lethal to the pet. For example, pulegone, the active ingredient in pennyroyal oil, has dose related toxicity to mammals and may induce lethargy, vomiting, diarrhea, nose bleeds, seizures, and, possibly, death due to liver failure. There is no antidote to pulegone poisoning (Sudekum et al. 1992).

Biorational Chemicals

Insect Growth Regulators

IGRs are the most effective weapon in the flea control arsenal. They are effective at very low concentrations (< 10 ppb) and have virtually no mammalian toxicity. They mimic insect hormones and act on insects by interfering with their normal development. If you can tolerate fleas for the time it takes these compounds to eliminate a flea population, IGRs are effective by themselves. Expect to wait 2 weeks before noticeable flea reductions and 1-2 months before complete control.

Conventional Pesticides

People have different levels of acceptance to pesticides. Some may accept pyrethrum because it is

a botanical, an extract of dried chrysanthemum flowers. But those with hay fever, especially allergy to ragweed, may show cross reactivity to pyrethrum making it unacceptable. Pyrethrum is known for its rapid knockdown, but fleas often revive and recover in time. Many people perceive boric acid or borax as being non-toxic and it is very effective for treating carpets. Test carpet color-fastness by applying boric acid or borax in a small, inconspicuous area first.

On-Host Treatments

It is necessary to treat the pet at the same time as the premises. Dusts are considered by some to be safer than sprays or dips (Olkowski et al. 1983).

Flea collars are the most seriously abused method of flea control. The advantage of a flea collar is that it can be placed on an infested pet for a treatment period (optimally less than 6 days) then removed and stored in a sealed glass jar until the next time it is needed. Flea collars should not be kept on pets permanently as a prophylactic measure. Be sure to check for dermatitis under the collar (Olkowski et al. 1983).

Dusts are considered safer than sprays or shampoos since there is no solvent to carry the pesticide through the host's skin. The problems with dusts or powders are that can't be controlled, easily becoming air-borne and they are ingested by cats during grooming. It is recommended that a pet be bathed after being treated with a pyrethrum dust to remove the fleas stupefied by the pyrethrum and reduce the risk of accidental ingestion by the pet.

Repellents can be used if you are taking your pet into a known flea-infested area. If a flea population exists in the home, use of a repellent on the pet means that the fleas will switch to their second choice for a blood meal - YOU. Many people report that the skin softener, Avon's SkinSoSoft, helped reduce flea problems for their pets. This product is not registered as an insecticide or for flea control.

Topical applications are available through veterinarians. They are spot-on oils which are applied to the shoulder region of the pet and distribute over the body within a few hours. They are non-toxic to mammals and kill almost all fleas on the pet within 24 hours.

Premise Treatment

Carpets can be effectively treated with boric acid or borax, alone or in combination with diatomaceous earth. Boric acid should be applied as a dust to indoor flea breeding areas. Boric acid may eventually cause damage to carpet fabric or upholstery. Boron compounds should not be used outdoors since they act as non-selective herbicides and will kill most plants.

Diatomaceous earth is made up of the fossil shells of single celled algae called diatoms. The shells are chemically and physically like ground-up glass. Diatomaceous earth kills only flea larvae. The larvae are scratched by sharp edges, lose body moisture, and die from desiccation. It has been found to be effective in dry climates but is much less effective in humid Florida. Linalool is an extract from citrus peels which is registered for indoor flea control. A wide range of conventional insecticides are registered for flea control as water diluted sprays, total release aerosols, or hand-held aerosols. Most of these would be unacceptable to pet owners who are uncomfortable with synthetic insecticides. No matter what product is used, always follow label directions.

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