Dogs and cats are at risk of getting fleas. In Nebraska, flea infestations usually get started in the summertime, after pets come in contact with infested pets or after they walk in areas where infested animals have spent time. In the U.S., the most common flea species carried by both cats and dogs is the cat flea, *Ctenocephalides felis*. Compared with other flea species, the cat flea has a very wide host range. Wild animals carrying cat fleas include raccoons, opossum, skunks and foxes.

Sometimes petless families have to deal with fleas after a visit to the pet store or after the kids have played with a neighborhood dog or cat. A flea infestation may result, after a flea infested wild animal, like a raccoon takes up residence in a chimney or crawlspace.

Fleas are small, dark brown insects whose bodies are hardened and compressed from side to side. Fleas do not fly, but have strong hind legs which they use to jump from host to host.

Flea bites are extremely irritating to pets. Large infestations or extreme sensitivity may result in intense itching and weight loss. Fleas have been known to transmit diseases. Fleas on cats and dogs are the intermediate host for *Dipylidium caninum*, better known as the double-pore tapeworm, which infests dogs, cats and sometimes, humans.

Because fleas do not spend their entire life on their host animal, they are nearly always associated with animals that regularly return to the same nesting sites.

Beginning about 1995, the number of flea infestations decreased, due to the use of effective animal care products that kill adult fleas on the animal. But, extension entomologists and pest control professionals have seen an increased number of flea infestations in the last few years. Experts do not understand the reasons for this increase. Some people believe cat fleas may be developing resistance to the pet-care products, but this has not been verified.

**Life Cycle**

In order to understand all the steps needed to eliminate a flea infestation, it is important to understand the flea life cycle.

Adult female and male fleas need a blood meal before mating. The female flea lays 30–50 eggs on the animal each day. She may live 4–25 days. The eggs are not attached to the animal and fall off wherever the animal sleeps or walks. The eggs fall into the carpet, pet bedding or yard.

Indoors, eggs hatch into tiny, light-colored wormlike larvae which

Please Read — We are providing information about flea control to help you, the consumer, be more informed about flea control so you can make more intelligent decisions about products. We recommend you work with a veterinarian before you use flea products on your pet. It is important to read and follow label directions. It is also important to use a product on the animal for which it is labeled. Products which can be used on dogs may not be appropriate for cats.

Know how. Know now.
live deep among the carpet fibers, in cracks and crevices or pet bedding. Outdoors, flea larvae are most likely found in shady locations, often where animals spend time. Larvae feed on organic matter. After several larval stages, the larva spins a tiny silken cocoon and pupates within it. Adult emergence from the pupa is stimulated by vibration and an increase in carbon dioxide, which indicates a host is present. The newly emerged adult immediately jumps on the host and begins feeding.

The entire life cycle usually takes a month or so; time is dependent on temperature and humidity.

**Flea Control**

Flea control can be challenging because of all the different places that must be treated. The goal of flea control is to eliminate existing adult fleas on pets; then take actions to eliminate larval fleas that develop off the animal.

1. **The first action is to treat the animal to kill adult fleas.** The newest animal treatments are often prescribed by veterinarians, but some effective older products can now be obtained at pet supply stores. Some products may be purchased on-line. Even if purchased on-line or at a pet supply store, we encourage pet owners to visit with their veterinarian when using animal care products.

What about traditional flea treatments? Flea shampoos and powders cost less than the animal preventative treatments listed above, but they may not be as effective. Shampoos and powders will need to be repeated regularly.

2. **The second part of managing fleas is to control the larval stage in the pet’s environment** by disrupting the flea life cycle and preventing the recurrence of adult fleas.

This step begins by laundering and steam cleaning/ vacuuming:

• Wash pet bedding in hot water to kill flea larvae. If animals sleep with family members, all bedding must be washed.
• Steam clean or vacuum carpets thoroughly everywhere the infested pet is allowed to roam.

After laundering and vacuuming, it will be necessary to treat with an insect growth regulator (IGR) where pets spend time. Focus on locations where pets:

• go in and out of the house
• sleep and rest
• jump off beds, sofas and chairs
• spend time with family members

When pets spend time outdoors, it may be necessary to treat outdoor areas, especially shady locations. Effective products which effectively control flea larvae with little to no negative impact on human or pet health include insect growth regulators (IGRs).

There are several IGRs which can be used:

• Program® is a once-a-month oral treatment which effectively sterilizes the female by preventing eggs from hatching. Data shows that within seven days after lufenuron is fed to the animal, virtually 100% of the eggs laid by female fleas failed to hatch. If you use Program®, all cats and dogs in a household must be treated because any untreated animals can infest your household with fleas. If you already have a flea infestation, lufenuron will break the flea life cycle, but, for a period of time, adult fleas will still bite your pet because it does not kill adult fleas.
• Spray Treatments: Instead of using lufenuron, you may choose to treat carpets and other surfaces with an IGR spray to break the flea life cycle. These growth regulators prevent eggs from hatching and larval fleas from pupating into adults. Use products which contain one of these two active ingredients:
• Methoprene (Precor, Siphotrol). This IGR has been in the market for many years and has proven to be effective. This IGR breaks down quickly in sunlight, but works well indoors.
• Pyriproxifen (Nylor, Archer) does not break down in ultraviolet light as quickly as methoprene so it lasts in carpets for many months. If outdoor treatments are needed, products which contain pyriproxifen should be used.

**What About Foggers?**

A fogger (or bomb) can be thought of as total-release-aerosol. The insecticide is released into a mist which dissipates in the room. Unfortunately, foggers do not penetrate well in carpets where larval fleas are hiding. In general, they provide poor flea control.

**Resistance to Animal Products**

The recent animal treatments to prevent or control fleas have been very effective. But, because flea infestations have been increasing, it is possible we are seeing early resistance to some of these products. If you are having problems controlling fleas, and have been using the same flea prevention treatment on your pet, consider using a different animal treatment.

### Table 1. Some common products used to treat adult fleas on animals

<table>
<thead>
<tr>
<th>PRODUCT (ACTIVE INGREDIENT)</th>
<th>METHOD</th>
<th>RESEARCH RESULTS/COMMENTS</th>
</tr>
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<tbody>
<tr>
<td>Frontline™ (fipronil)</td>
<td>topical</td>
<td>Death of fleas and ticks usually within 24 hours. Monthly application killed 97% of fleas on pets and 98% reduction of off-host life stages. May be found at pet supply stores.</td>
</tr>
<tr>
<td>Advantage™ (imidacloprid)</td>
<td>topical</td>
<td>Single topical application provided 95% control of fleas on cats and dogs. There was also a 98% reduction of off-host life cycle stages. May be found at pet supply stores.</td>
</tr>
<tr>
<td>Revolution™ (selemectin)</td>
<td>topical</td>
<td>Synthetic ivermectin. Selemectin killed 98% of fleas on dogs (36-hr) and cats (24-hr). Protected dogs for 21 days and bathing animals did not affect its effectiveness. Revolution is the only one of these medications that also prevents dog heartworms, ticks, ear mites and sarcoptic mange. It is more expensive than other treatments, but is effective against more parasites.</td>
</tr>
<tr>
<td>Capstar™ (nitempyram)</td>
<td>oral</td>
<td>Same chemical class as imidacloprid (Advantage). Nitempyram starts working within 15 minutes. Within 30 minutes, adult fleas are dislodged. All of the fleas were killed within eight hours.</td>
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</tbody>
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