

Protecting Your Cats and Dogs from Pesticide Poisoning

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This NebGuide discusses concerns about pesticide poisoning in pets, how to prevent accidental exposure, and what to do if poisoning does occur. Examples include pesticide poisoning through contact with pesticides in yards or homes (including ingestion of snail/slug baits), and misuse of flea and tick collars or spot-on treatments.

Pets are an integral part of our lives, and historically, pets have been recorded as living with humans for thousands of years. The American Veterinary Medical Association estimates there are over 69 million dogs and 74 million cats in the United States, with 36.5 percent of U.S. households owning dogs and 30.4 percent owning cats.

Pet owners wish to keep their pets healthy, which includes preventing and treating infestations by pests such as fleas and ticks, and reducing the potential for accidental poisonings from household or yard pesticides (*Figure 1*). This NebGuide will discuss how dog and cat pesticide poisonings occur, how they can be prevented, and precautions to take when using pesticides on or around pets. It also will examine how to re-

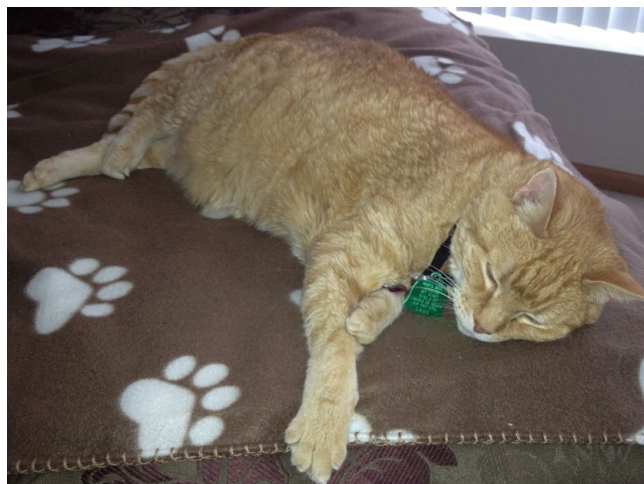


Figure 1. Pets are an integral part of our lives; protect them from pests and pesticide poisoning. Photo: University of Nebraska–Lincoln

duce the risk of exposure to humans when handling pets that have been treated with pesticides. This publication focuses on pet dogs and cats; many of the same precautions apply when preventing poisoning in other pets, such as reptiles, birds, rabbits, or rodents.

How Cat and Dog Pesticide Poisoning Occurs

Dogs and cats can be exposed to pesticides that are used in and around the home, including antibacterial/antimicrobial cleaning products, garden and lawn care products, and snail/slug and rodent baits. Homeowners and pesticide applicators *must* read and follow the label when using these products, and store pesticides out of reach of pets and children. This can significantly reduce the risk of exposure.

Some common pesticides that can cause poisoning in dogs and cats are products used to control rodents; baits applied for slug and snail control; herbicides applied to lawns; and insecticides used in flea collars and spot-on products.

Integrated Pest Management – Although sometimes using pesticides is necessary, an Integrated Pest Management (IPM) approach can minimize pesticide use and greatly reduce the risk of accidental pet poisoning. IPM is an environmentally friendly approach that uses a variety of methods to control pests, including sanitation practices, exclusion, trapping and other mechanical controls, and less toxic pesticides. Using strategies such as snap traps for mice instead of rodenticides, or sticky traps instead of spraying to kill insects can greatly reduce the risk of accidental pet poisoning.

Outdoor Pesticide Applications – If other approaches have been tried and applying a pesticide is the most effective choice for controlling pests in or around the home, take precautions to protect your pet. Pick up all toys and food and water dishes from areas to be treated to avoid contaminating these objects with pesticide residue. Confine animals to areas where they will not be exposed. For example, keep them inside

when applying pesticides to the yard until liquid pesticides are dry, granular pesticides have been incorporated into the soil, or dusts have settled. This may take several hours. When walking dogs, keep them on the sidewalk and away from yards that have been treated (*Figure 2*).



Figure 2. Keep pets off the yard after applying pesticides; wait for pesticides to dry or be integrated into the soil before allowing access. Photo: University of Nebraska–Lincoln

Baits – Baits commonly used in pest control that can be harmful to animals include those for rodents and snails/slugs. Put any rodent baits used indoors or outdoors in tamper-proof stations in places inaccessible to pets. Dogs and cats are very susceptible to poisoning if they eat rodenticides such as brodifacoum, as these products are formulated to kill mammals. In addition, a pet can receive secondary poisoning if it is exposed to or eats a poisoned rodent, although this is more commonly seen in wildlife predators. Preferably, use snap traps instead of bait, but still keep traps in tamper-proof stations to prevent injury.

If controlling snails or slugs using molluscicides, such as metaldehyde, be especially careful applying these products around dogs. Dogs tend to be voracious consumers of bait products, whereas cats are more selective. Many times, baits are formulated with bran or molasses to make them more attractive to slugs and snails; these materials are also very attractive to dogs.

Indoor Pesticide Applications – To control pests like cockroaches indoors, use crack and crevice treatments, such as gel baits or dust treatments, to reduce the risk of exposure to pets. In general, these are less toxic products and are formulated for use in areas where pests hide but that people and animals can't access. Household cleaners designed to kill microbes are considered pesticides and could be harmful to pets. Be sure to keep these chemicals in locations that are locked or otherwise inaccessible to dogs and cats.

If other types of pesticide treatments are necessary, keep pets in another area of the home, away from the treated site, until the liquid pesticide is dry. Remember that the label is the law. When using any pesticide, follow the label information on the proper application procedure for that product, as well as how to protect people and your pets from exposure.

Spot-on Treatments – A spot-on treatment is a pesticide-containing solution that is applied somewhere on the animal's body that the animal cannot lick, such as between the shoulder blades (*Figure 3*). These products may contain pyrethrins, fipronil, imidacloprid, selamectin, dinotefuran, or permethrin, plus, in some products, additives that make the active ingredient more effective. These pesticides help control adult insects, but some products also contain an insect growth regulator (IGR), which stunts or prevents growth of insects or keeps them from developing properly, thus controlling the insects' immature life stages. IGRs might include methoprene, fenoxycarb, or pyriproxifen.

After application, some pesticides can penetrate the skin and enter the blood stream (e.g., selamectin, which also controls heartworm), spreading throughout the pet's body. Other pesticides can remain in the sebaceous (oil) glands of the skin or on skin surrounding the shafts of hair (e.g., fipronil). Either way, a flea or tick that contacts or bites the treated animal is exposed to the pesticide and killed. This reduces irritation caused from pest bites and the diseases transmitted by them.

Pet owners must use these products according to label directions or as directed by a veterinarian. The spot-on treatments may be used for several months (follow a vet's recommendation) during times when fleas or ticks are known to be active in the pet's locale.



Figure 3. Applying spot-on treatment to a small dog. Photo: University of Nebraska–Lincoln

Spot-on products are generally safe when used as directed, but excessive or unintended exposures may occur. For example, over-application may occur when one person does not know another has already applied a treatment, or there is pet-to-pet or human-to-pet contact with the treated site. Follow application instructions provided by the product manufacturer or consult a veterinarian if you have questions.

Pet-to-pet Transfer – Pet-to-pet transfer can occur if one animal comes in contact with the spot-on treatment site on another animal. Risk of exposure would be greater if oral contact is made; this might occur during mutual grooming. Dog-to-cat transfer of permethrin can result in a neurotoxic reaction. Keep a treated pet separated from other pets until the pesticide product has had time to dry.

Pet-to-human Transfer – The potential for human exposure to spot-on treatments exists when people handle the dog or cat soon after treatment. Children are especially vulnerable because they often sit at the animal’s level and interact with the pet at close range, making them more apt to touch the spot-on application site. In addition, children are less likely to wash hands after petting the animal and before eating, using the restroom, or sucking a thumb. Because of children’s developing bodies, including respiratory, endocrine, nervous, and other systems, they are more susceptible to the effects of pesticides (Gouge and Lee-Melk, 2008; Green and Gouge, 2011). Keep children away from the pet until the pesticide has dried and been absorbed into the animal’s skin and fur. This may take several hours. The pesticide label will provide instructions for proper and safe use.

Pet Weight and Age – Because of the wide variety of dog and cat breeds, spot-on treatments are available for different animal weights. The owner must know the weight of the pet before purchasing a product. Many spot-on products give a weight range (for example, up to 22 lbs or 23-44 lbs) for applying the product, and have separate products available for different weight ranges. Do not divide a product meant for a larger breed into two doses for a smaller breed; the dosage amount may be too high for the smaller dog and such use violates label directions.

Product labels may state age and weight restrictions for use of the product (*Figure 4*). For example, you may not be able to apply a pesticide to very young puppies. Other restrictions may apply for pregnant or lactating females. It is very important to follow these instructions closely.

A product labeled for use in one species should not be used in another unless specifically instructed by a veterinarian. For example, cats are more susceptible to poisoning by certain active ingredients than dogs, so if a spot-on treatment intended for a dog is used on a cat, the cat may be excessively exposed to these ingredients. One example of this is permethrin, used in some spot-on dog formulations. Exposed cats can exhibit signs involving the nervous system, such as tremors, muscle twitches, and seizures (Richardson, 2000). If these signs occur and a cat has been around permethrin, take the animal to the vet for assessment and treatment.

Consult your veterinarian if you have questions about your particular pet’s needs and follow label directions carefully to ensure the product is used effectively and safely (*Figure 5*).

Protect Yourself when Applying Spot-on – To reduce risk of exposure when applying spot-on treatments, wear chemical-resistant gloves to prevent absorption into the skin. Immediately after applying the pesticide, dispose of the product applicator by enclosing it in plastic wrap or, if you wore disposable gloves, wrap those around it, before discarding. Deposit this waste in a trash container outdoors, not in the house or garage. Finally, thoroughly wash your hands.

Flea and Tick Collars

Some flea and tick products are impregnated in a collar that the pet wears for several months. These collars slowly

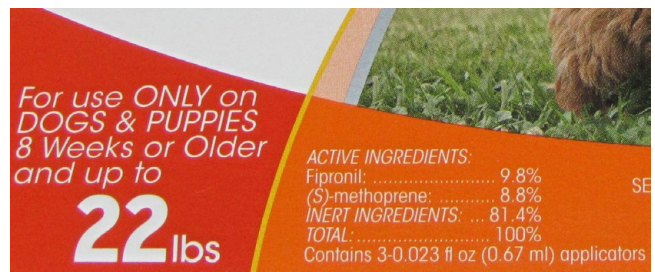


Figure 4. Age and weight requirements will be listed on flea and tick products. Photo: University of Nebraska–Lincoln



Figure 5. Always follow label directions when applying flea and tick products to pets. Photo: University of Nebraska–Lincoln

release the pesticide to provide pest control over an extended period. Using a flea collar is less messy than applying spot-on treatments and may require fewer applications, as these collars provide treatment for 3-8 months, depending on the active ingredient, compared to 1-2 months with spot-on. However, some studies have shown that pesticide residues from flea and tick collars can remain in the pet’s fur, exposing the pet, other household pets, and the owners to pesticides (Dyk, Liu, Chen, Vega, & Krieger, 2012). Some pets dislodge and chew their own or other pets’ collars, thus ingesting pesticide. You may wish to discuss the disadvantages and advantages of flea and tick control options with your veterinarian before deciding on a product formulation.

Signs of Pet Poisoning

Because animals are unable to tell their owners that they aren’t feeling well, they can’t describe symptoms, or what they are experiencing, after a pesticide exposure. Instead, the owner or vet must rely on signs, or observations of physical changes, seen in the cat’s or dog’s behavior. Some common signs seen in pets after being exposed to pesticides include drooling, vomiting, diarrhea, tremors, uncoordinated walking, and seizures. If you observe any of these signs in your pet and have recently applied pesticides in or around the house or yard or through a spot-on or flea and tick collar treatment, seek advice from a veterinarian and consider bathing the pet to remove surface residue that could contribute to ongoing exposure, before taking further steps. If signs indicate a severe reaction, don’t wait, take the pet to the vet immediately for assistance.

Poisoning Prevention

To reduce the risk of pesticide poisoning in dogs or cats, follow these steps:

- Keep pets out of areas (yard or home) when liquid or granular pesticide products are being applied. Remove any food and water, toys, or bedding from the treatment area prior to application.
- After the application, let the pesticide solution dry completely or let granular dust settle before allowing pets into the area again. The label may provide guidance on re-entry intervals.
- Keep pesticide containers tightly sealed and store pesticides out of reach of pets. A good location is a locked cupboard. Many pets can figure out how to open doors in lower cabinets and therefore encounter pesticide containers or flea/tick treatment boxes. After use, deposit trash in outside trash containers.
- Put rodent and snail/slug baits in tamper-proof stations in areas that are out of reach. Rodenticides are poisonous to all mammals if swallowed. Secondary poisoning can occur if pets eat poisoned rodents. Consider using snap traps or other nonchemical methods rather than poison baits if you have pets.
- Apply flea and tick products according to the label and only on the animal intended (*Figure 3*). Do not use a dog product on a cat, a product meant for a large animal on a small animal, or a product intended for an adult on a very young animal. In addition, do not apply a product on an animal that is intended for application to indoor or outdoor sites, even if the active ingredient is the same.
- Notify all family members when a pet or a yard will be treated.

What to Do in Case of Poisoning

If you suspect your pet has been poisoned by flea and tick products or other pesticides, follow the label directions for first aid and take the pet to your veterinarian immediately. If you know the source of the poisoning, bring the label with you to help medical personnel determine the proper treatment.

You can call the National Animal Poison Control Center (University of Illinois) at 1-800-548-2423, the ASPCA Animal Control Center at 1-888-426-4435, or the Pet Poison Helpline at

1-800-213-6680 in case of emergencies. A fee may be charged for services. When calling an emergency hotline, provide as much of the following information as possible:

- Your contact information, including name, address, and telephone number;
- Information concerning the pesticide exposure (when the exposure occurred, the amount of product swallowed, etc.);
- The species (cat or dog), breed, sex, age, and weight of the animal(s);
- The name of the pesticide your pet was exposed to, and;
- The signs of exposure your animal is showing.

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