

Pest Management News

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Flea Management for Homeowners

John D. Hopkins

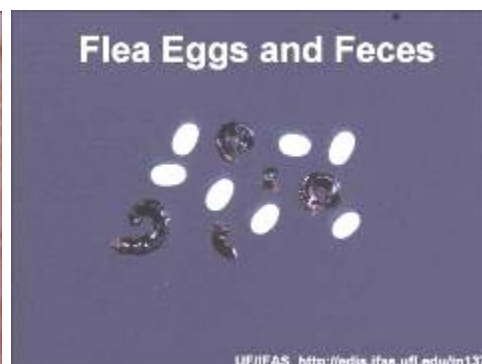
The most common fleas people encounter are found on cats and dogs year-round but are most common during warm and humid weather. Fleas are attracted to animals by body heat, movement and the carbon dioxide that animals exhale. Adult fleas can jump up to 150 times the length of their body to reach a host. Adult fleas feed on blood while the immature larval form of the flea feeds on organic debris. The typical life span of the flea is more than 100 days—enough time for a pair of fleas and their descendants to produce millions of offspring. Under ideal conditions and assuming that none die, a pair of fleas has the potential to produce more than 20 trillion descendants in one year.



Adult fleas (the biting stage seen by pet owners) spend most of their time on the animal, not in the carpet. This is why treatment of the pet in conjunction with the pet's environment is an essential step in ridding a home of fleas.

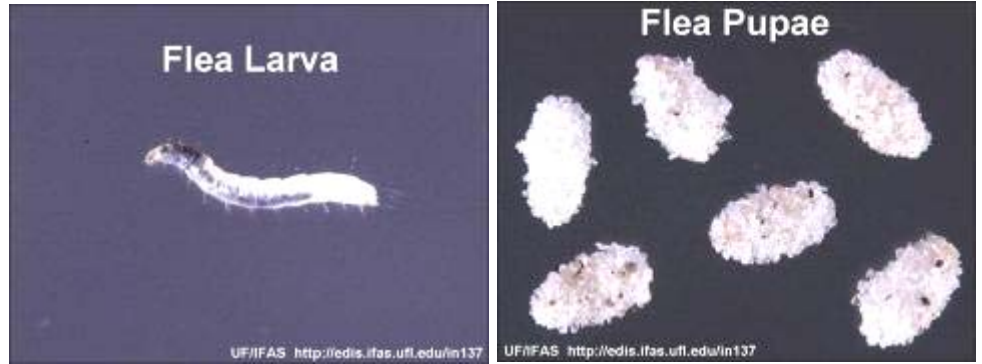
Adult fleas lay all of their eggs (up to 50 per day) on the pet.

However, the eggs soon fall off the animal into carpeting, beneath the cushions of furniture, and



wherever else the pet rests, sleeps or spends most of its time. This is where homeowners should focus control measures.

After hatching, flea eggs develop into tiny, worm-like larvae. Larvae remain hidden deep in carpet fibers, beneath furniture cushions and in other protected areas. The larvae feed mainly on adult flea feces (dried blood) which accumulates, along with the eggs, in pet resting and activity areas.



Before becoming adult fleas, the larvae transform into pupae within a silk-like cocoon. Pupae remain inside the cocoon for 2 to 4 weeks, sometimes longer. The cocoon is resistant to insecticides, and this is why some adult fleas are seen for an extended period, even after the home and pet are treated.

Ridding a home of fleas can be a frustrating and costly endeavor. Unlike some pests encountered around the home, fleas cause discomfort and irritation to both pets and people. Fleas account for more than half of all dermatological conditions requiring veterinary assistance, and even a single flea bite to a hypersensitive animal or person may cause intense itching and irritation. Fleas are also important vectors of disease. The most important diseases that fleas transmit to man are plague and flea-borne typhus (transmitted primarily by rodent fleas). Fleas also serve as intermediate hosts for some tapeworms (which infest rodents, dogs and occasionally man) and a filarial worm of dogs. They may also serve as vectors of tularemia.

For successful flea control, the home, pet and, oftentimes, the yard must be treated. Yet the manner in which these treatments are performed can greatly influence the results. The following information will help frustrated pet owners effectively rid their homes and pets of fleas.

To deal with flea infestations, it's best to remember where they live and reproduce. Flea larvae develop in floor-level cracks and crevices, furniture used by pets, and in rugs and carpets, making them difficult to eliminate. Thorough cleaning is one of the best ways to get rid of the larvae and eggs. Carpeted areas need to be vacuumed and treated with a residual flea control product labeled for indoor carpets. Remember to vacuum daily. Concrete floors may be treated with the same flea control product. Vacuum and wash floors thoroughly with soap and water to remove dust, flea larvae and flea eggs.

By treating infested pets and the interior of the home, most flea problems can be eliminated. However, treatment of the yard may be necessary when pets spend most of their time outdoors. A good way to tell if your yard is infested with fleas is to walk around the property wearing knee-high white socks. As you walk, fleas will jump onto the socks and can be easily seen against the white background.

Outdoor flea treatments should target areas where pets rest, sleep and run (doghouse, kennel areas, under decks, along fences, next to the foundation). Rarely is it necessary to treat the entire yard or

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open areas exposed to full sun. Insecticide formulations containing permethrin are somewhat effective for outdoor flea treatment, and these can be applied with a hose-end or pump-up sprayer. Long-term suppression of fleas infesting kennels or outdoor areas can be improved by using insecticide formulations containing an insect growth regulator (IGR) such as methoprene or pyriproxyfen.

You can successfully control a flea problem by following the steps listed. However, if you lack the time to do your own flea control or are uncomfortable applying pesticides, you may wish to enlist the services of a professional pest control firm.

Flea Management Steps:

Step 1. With veterinarian supplied products that are currently available, control of fleas in small- to moderate-sized infestations is likely to occur by using those pet treatment products alone. It may take 2 months to completely break the flea life cycle. If pet treatment alone does not provide sufficient control, initiate a complete control program.

Step 2. Vacuum infested areas twice a week and prior to treatment to remove eggs, larvae, adults and organic matter. Steam cleaning your carpet may also reduce populations. Eliminate fleas from pets, bedding and premises before departing on vacation.

Step 3. Treat pet resting areas indoors and clean or remove pet bedding on the same day. The use of insect growth regulators is important to break flea life cycle. A combination of an insect growth regulator and an adulticide may be the most efficient insecticide formulation to use.

Step 4. Mow grass, keep weeds down and trim shrubs to expose flea eggs and larvae to lethal desiccation. Irrigating areas surrounding buildings, but not against building, may kill fleas by drowning. If fleas are surviving outdoors, apply an insecticide carefully following the directions on the label.

Keep pets and people out of treated area (indoors and outdoors) until spray dries.

Control Recommendations

Pet Treatments:

Consult a veterinarian and always read the label prior to treating a pet. Veterinarian supplied products usually kill fleas within 12 – 36 hours or sooner and provide 90 – 95% control for about 30 days:

Adulticides:

- fipronil (Front line Top Spot)
- fipronil plus methoprene (Front line Plus)
- imidacloprid (Advantage)
- selamectin (Revolution, also kills other cat parasites)

Insect Growth Regulators [and adulticide]:

- lufenuron (Program) an insect growth regulator given in a monthly pill/feed additive. Available by prescription from veterinarians.
- methoprene [and pyrethrin]: on-animal sprays, mousses, and flea collars
- pyriproxyfen [and permethrin or pyrethrin]: on-animal sprays and spot-ons

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Indoor Crack & Crevice Treatments / Spot-treat infested areas and pet resting areas inside:

Only use products specifically labeled for flea control. Apply to carpets and crevices in flooring. Do not leave chemical residue on surface. Avoid accidental inhalation during application. Treat sleeping quarters of pets and other localized areas, such as under cushions and furniture, as specified on label. Vacuum carpets and furniture before applying and dispose of contents properly. Sprays may be used for general area treatment. Also treat cracks, crevices and similar areas only. Foggers are only effective when used in conjunction with other sprays to other critical areas. Treat infested animals with properly-labeled product for lasting control.

boric acid

allethrin (Ortho)

bifenthrin (Ortho)

cyfluthrin (Bayer, Raid)

eugenol (Bioganic)

esfenvalerate (Ortho)

lambda-cyhalothrin (Spectracide)

permethrin (Spectracide)

pyrethrins, pyrethrum

tetramethrin (Hot Shot, Ortho)

tralomethrin (Hot Shot, Raid, Spectracide)

methoprene (Precor) - Insect growth regulators that control immature fleas only. Usually formulated with an adulticide.

pyriproxyfen - Insect growth regulators that control immature fleas only. Usually formulated with an adulticide.

Outdoor Premise Treatment:

Concentrate on kennels and shaded areas where animals tend to rest or congregate. Apply liquid formulations with sufficient spray volume to saturate soil. Granular formulations must be watered in or applied before rain. Repeat as needed at 4- to 6-week intervals. Apply as directed on the label.

bifenthrin (Ortho)

cyfluthrin (Bayer)

diatomaceous earth (PermaGuard)

permethrin (Spectracide)

tetramethrin (Ortho)

tralomethrin (Raid, Spectracide)

All chemical information is given with the understanding that no endorsement of named products is intended, nor is criticism implied of similar products that are not mentioned. Before purchasing or using any pesticide, always read and carefully follow the directions on the container label.

New Product Registered for Darkling Beetle Control in Poultry Houses

Kelly M. Loftin

Bayer Animal Health recently announced that Credo™ SC Insecticide (42.8% imidacloprid) received Environmental Protection Agency approval for use against adult and larval darkling beetles in poultry houses. Credo™ SC contains the same active ingredient found in Bayer's QuickBayt® and Merit® products used for fly control on livestock premises, and turf and ornamental pests, respectively. This registration adds the availability of a new chemistry class (neonicitinoid) for use against darkling

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beetles. The product label for Credo™ SC is available at <http://www.bayerdvm.com/products/credoSC/CredoTechSheet.pdf> .

Credo™ SC is labeled for band treatment with an application rate of 3 fluid ounces of product per 1000 square feet. The dilution rate is from ½ to 2 gallons of water per 3 ounces of product. Treated areas in band applications include: a three-foot band of litter under all feed and water lines, a three-foot band of litter adjacent to side and end walls and the lower section of walls (one foot up onto wood surfaces above the foundation). For severe infestations, this product is also labeled for whole house application. Credo™ SC should not be applied when birds are present. Exposed feed or water should be covered or removed during treatment. All treatment surfaces should be dry before the house is restocked with birds.

Because Credo SC was only recently labeled for darkling beetle control, it is not listed in the 2008 Insecticide Recommendations for Arkansas. For a listing of other products labeled for darkling beetle control check the 2008 Insecticide Recommendations for Arkansas (MP 144) (http://www.uaex.edu/Other_Areas/publications/HTML/MP-144.asp).

Biting Midges: More than a Pest

Kelly M. Loftin

Biting midges, also known as no-see-ums, are the tiny biting flies in the Family Ceratopogonidae that have become active in Arkansas over the last month. These almost microscopic biters are a nuisance to campers, fishermen, gardeners or anyone active outdoors, especially during dusk. The name no-see-um is appropriate since they are difficult to see and their bite is disproportionate to their size. Biting midges are also a wildlife and livestock concern. Some members of this family are potential vectors of the bluetongue virus in sheep and cattle. Biting midges are also capable of transmitting epizootic hemorrhagic disease (EHD) in wild ruminants such as deer. Occasionally, some horses experience equine allergic dermatitis or a localized allergic reaction to biting midges. This dermatitis usually occurs on the withers, main, tail or ears of sensitive horses.

Animal-to-animal transmission of blue tongue virus is primarily through the bite of infected biting midges in the genus *Culicoides*. Occasionally, transmission of the bluetongue virus occurs venereally through semen of infected bulls (or rams in the case of sheep). In cattle, the bluetongue virus occurs primarily in southern and



Photo of *Culicoides* by Scott Bauer, USDA Agriculture Research Service UGA1318089

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western states and is rare in northeastern and north-central states. The disease is usually not overly severe in cattle with less than 5% of infested animals showing symptoms. However, some experts suggest that the possibility of decreased trade associated with bluetongue outbreaks has become an even bigger threat to the livestock industry than the actual disease itself. In some areas of the U.S., bluetongue virus antibody prevalence in cattle can be from 20 – 50%. Bluetongue disease is much more severe in sheep; and even worse in deer. It is fairly common to observe high mortality in infected deer.

EHD (called blacktongue disease by some deer hunters) is a virus very closely related to the bluetongue virus. Both the bluetongue and EHD virus are orbiviruses in the Family Reoviridae. The major difference between bluetongue and EHD is that EHD occurs primarily in wild ruminants such as deer. EHD is considered one of the most important infectious diseases in wild deer populations in the U.S. It primarily affects white-tailed deer and is responsible for sporadic die-offs. Cattle are commonly exposed to EHD. In many cases in cattle, EHD infections are silent or cause only mild clinical signs. Like the blue tongue virus, EHD is transmitted by biting midges in the genus *Culicoides*.

Adult biting midges are less than 1/8 inch and often closer to 1/16 inch in length. Wings are covered with dense hairs that result in pigmented patterns on the wings. Mouth parts are well-developed with elongated mandibles adapted for blood sucking. Both males and females feed on nectar, but only the female feeds on blood. She must consume blood for her eggs to mature.

Biting midge eggs are only about 0.25 mm in length and are laid on moist soil. Eggs hatch into wormlike larvae with short brush-like breathing structures that allow them to breathe in an aquatic environment. Although larvae are not strictly aquatic or terrestrial, they can not develop without moisture. After adults emerge from the final immature or pupal stage they feed and mate. Common breeding areas include along the edges of springs, streams and ponds, muddy and swampy areas, tree holes, wet manure-containing soil around leaky water tanks and even water associated with air conditioning units.

These tiny flies are ferocious biters, causing painful and irritating bites in some people. Allergic or sensitive individuals may develop long-lasting painful and itchy lesions. Outdoor enthusiasts can protect themselves with insect repellents. Many repellents typically used against mosquitoes are also labeled for use against biting midges. Always follow the label precautions and apply before exposure to these biters. Occasionally no-see-ums and biting midges will also enter houses and screened patios through standard 16-mesh screening and netting or damaged areas of the screen. If this is the case, you can replace damaged screen with closer meshed screen or treat existing screen with an approved insecticide such as permethrin. Also, try turning on the ceiling fan on your porch; ceiling and window fans will often keep biting midges away since they are weak fliers. When using an insecticide read and follow label directions.

Protection of livestock from biting midges using insecticides is unlikely to affect the biting midge population. Permanent larval habitat modifications can help to reduce insect populations over the long term, but are often cost prohibitive.

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Algal Leaf Spot of Magnolia

Stephen R. Vann

This leaf spot can be a common sight on southern magnolia and sometimes camellia growing in Arkansas during humid, hot weather conditions. Frequent rainfall serves to spread spores of the parasitic algae (*Cephaleuros virescens*), which cause this spot. This disease has also been called “green scurf” based on the overall appearance of this algae growing on plant surfaces. This leaf spot disease is one of the few diseases in which the causal organism is an alga. The algal body produces a spore stage that has the ability to swim in a film of water on plant surfaces before settling in and producing additional colonies on the plant. This disease often affects plants with somewhat leathery leaves like the southern magnolia, camellia and gardenia. Even though this algal disease is most often seen on the leaves of several landscape plants, it can occasionally infect twigs also. The algae may survive adverse environmental conditions on spotted leaves and twigs that remain on the plant and on leaves that have fallen to the ground. The survival ability of this algal organism enables the disease to occur year after year.

Growth of the algae is mostly superficial and appears as raised blotches or patches ranging in diameter up to 1/2 inch on leaves. The leaf spots appear initially as a pale green or grayish area that eventually turns an orange-brown to reddish color. Spots develop a velvety, cushion-like appearance on the plant surface. Severe infection may lead to some localized leaf yellowing and premature leaf drop. The disease is most severe and damaging on slow growing or weakened shrubs and trees. Weakened landscape plants often become susceptible to many other diseases that do not normally attack vigorously growing and healthy plants.



Algal spot of Magnolia



Algal spot of Camellia

For urban landscape plants, good sanitation is a helpful practice. On plants with a low level of infection, merely removing spotted leaves from the plant and raking fallen leaves is useful. Since the algal colonies may survive adverse environmental conditions on fallen leaves, removal of this material will minimize the chances of it next season. Where permitted, burning of infected leaves is effective; otherwise, discard leaves with other landscape trash.

Since frequent rainfall and wet conditions favor disease development, selective pruning of surrounding plants will encourage leaf dryness by improving air movement between and among shrubs and trees. Dry plant surfaces develop fewer disease problems.

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Chemical control can be effective by using fungicidal sprays containing copper materials such as copper hydroxide. Complete coverage of the plant is important. Sprays may be used to protect plant surfaces from infection but will need to be applied with the onset of wet weather. Read and follow label directions for application. Under some environmental conditions, copper containing materials may result in plant injury. See Extension publication MP154 or visit your local county Extension office for additional information.

New Rodenticide Regulations

Becky McPeake

On June 4, the U.S. Environmental Protection Agency (EPA) issued new safety measures for rodent-control products (rodenticides). Residential use products will be sold in tamper-resistant packages containing smaller portions of bait to prevent accidental exposure to children, pets and wildlife. This applies to bait used indoors or outdoors and above ground. Residential use rodenticides include first-generation anticoagulants (i.e., warfarin, chlorophacinone, and diphacinone) and non-anticoagulants (i.e., bromethalin, cholecalciferol and zinc phosphide).



Restrictions will be placed on distribution of second-generation anticoagulants (i.e., brodifacoum, bromadiolone, difenacoum, and difethialone), as these are considered more hazardous. Distribution will be limited to agricultural, farm and tractor stores or directly to pest control operators (PCOs) and other professional applicators. Such products will be sold in packages containing at least eight pounds of bait and labeled for use inside and around agriculture buildings—residential use is prohibited. Products labeled for professional applicators will be sold in packages containing at least 16 pounds of bait.

When dealing with rodent problems, rodenticides are just one tool in an integrated pest management approach. Rodent-proofing buildings and removing rodent habitat (e.g., sanitation) is also essential. Snap traps can be an effective tool when only a few rodents are causing problems. Homeowners need to be aware that a poisoned rodent could die in an inaccessible location, creating odor and sanitation problems as the carcass decays.

Additional information about this ruling can be found at <http://www.epa.gov/pesticides/reregistration/rodenticides/finalriskdecision.htm>. Information about rodent control is available through the Internet Center for Wildlife Damage (<http://icwdm.org/handbook/index.asp#rod>) and the Centers for Disease Control and Prevention (<http://www.cdc.gov/rodents/>).

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Name That Weed

Bob Scott

This grass weed is a tremendous problem in bermudagrass lawns. It sometimes emerges from dormancy a few days prior to bermuda “green up” and glyphosate + pendimethalin or another residual can be used for effective control. The photo is of individual seeds, not the flat, disc-shaped seed. Multiple shots of MSMA are often used to eventually clean it up.

Be the first to respond to me at bscott@uaex.edu with the correct common name, and win a prize.



To The Readers

Please offer any suggestions for Urban or Livestock Integrated Pest Management topics (insect pests, plant diseases, weed problems or wildlife control problems) that you would like to see – **OR** – feel free to submit an article that you have prepared. Kelly and I will be glad to include it (subject to editing). Send feedback to jhopkins@uaex.edu or kloftin@uaex.edu.

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