



smartsolutions |



fleas

BASF Pest Control Solutions
The Evolution of Better Pest Control

 **BASF**

The Chemical Company

The Problem with Fleas

Once among the top reasons for calls to pest management professionals (PMPs), flea problems appeared to decline significantly toward the end of the 20th century. With improved flea control products, and new on-animal products introduced, homeowners began relying more on vets than PMPs for flea control.

Compared to just a few years ago, however, flea business is up throughout the United States. Homeowner complacency in treating their pets and an increase in urbanization, displacing wildlife such as raccoons, skunks, and opossums may well have been factors in this flea resurgence.

Whatever the cause, fleas are again a problem no PMP should be ill-prepared to effectively and efficiently control.

The SmartSolution for Fleas from BASF Corporation was designed to help you not only reliably control fleas, but also to minimize technician time and labor and homeowner inconvenience. It combines a strategic inspection and application plan with the latest pressurized technology and advanced products for quick knockdown and residual control.

The SmartSolution for Fleas



Getting a Handle on the Problem

Identify The Flea Species

Knowing which flea species you're dealing with is necessary to develop an effective control strategy. There are more than 2,000 species of fleas worldwide, but only about ten commonly encountered in the U.S.

By far the most common among these is the cat flea, *Ctenocephalides felis*. Name notwithstanding, this flea is not exclusive to cats. It is the most common flea to infest domestic dogs and other domestic pets and can be an aggressive human biter. The dog flea, *Ctenocephalides canis*, is also frequently encountered, but is more common among feral dogs and cats and more limited geographically.

When attempting to identify flea species, if your customer doesn't have a specimen to show you, the white sock method may be helpful. Simply put on a pair of white socks, pulling them up over the cuffs of your pant legs, and walk around the home in areas suspected of harboring fleas. Fleas will quickly jump onto the socks where they can be captured for identification.

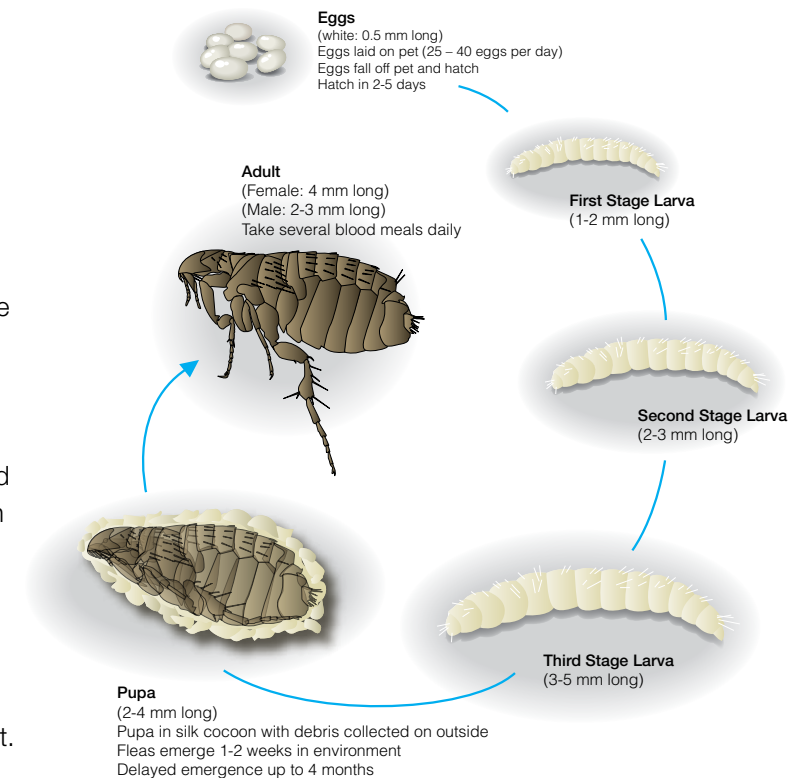
Flea larvae require 50% relative humidity or greater for survival. They survive best outdoors in shady, moist areas during warm months in moderate climates. Indoors, they do best in protected areas, such as within carpet fibers, beneath cushions of upholstered furniture, cracks in wood floors or pet bedding.

As the larvae progress through their third instar, they spin silk cocoons for pupation. The cocoons, which incorporate dirt, lint and other debris, are hard to detect and also protect pupae from pesticide penetration. The pupal stage averages about 7 to 14 days, but some pre-emerged adult fleas remain in the protective cocoon for as long as a year, waiting for a host-presence stimulus to trigger emergence. Stimuli can include vibrations, warmth, carbon dioxide and pressure. Emerging adults begin feeding once they have found a host, usually within seconds. They commonly mate while on the host within a matter of hours and the female can begin laying eggs within 48 hours. Adults usually remain on the host and may live for one to four weeks.

Know the Flea Lifecycle

Fleas undergo complete metamorphosis from smooth, white, oval, eggs about .5mm long to larvae, pupae, and finally 2-4mm adults. A single female may lay several dozen eggs per day for three months or more. Eggs laid on a host animal may fall off and hatch just about anywhere the host has been. The eggs usually hatch in 1 to 10 days, depending on temperature and humidity.

Newly emerged larvae are slender, 1.5 mm long, segmented, sparsely covered with hairs, and translucent white. They avoid light and actively burrow deep into fibers of carpet or beneath organic debris. Larvae feed on organic debris found in their micro-environment but must also feed on adult flea feces, which contains partially digested blood. Flea larvae undergo 2 molts over a period of 5 to 11 days or longer, during which they double in size. The larvae remain translucent white but appear to darken due to ingested blood in their digestive tract.



Determine and Address the Source (Primary Host)

It is important to determine the source of infestation (host). Common sources of infestation in a home include:

- House pets that become infested outdoors.
- Pest animals (squirrels, raccoons, mice, etc) living in the home.
- Feral cats or dogs that drop fleas in areas where they are picked up by humans.
- Former occupants with a flea infested pet (fleas can remain in the vacant home).

Each of these scenarios has different implications for addressing the primary host. The first requires treating



the house pet for fleas, the second and third require controlling or removing the pest animals. And the last doesn't require any animal-related actions.

Identify Larval Development Sites

Based on the primary host, identify the most likely larval development sites in and around the home. In the case of house pets, ask homeowners about the pet's sleeping, resting, and activity patterns. Keep in mind that cats sometimes explore into more elevated areas and more secluded areas, making these places an important part of your treatment strategy. Crawl spaces, soffits over cabinets, inside box springs, and behind clothes in closets are often overlooked places where cats may rest.



Assess Sensitive Situations and Involve the Homeowner

Your flea inspection should include an assessment of floor surfaces and fabrics on furniture and rugs that need treatment. Some floor finishes and fabrics are prone to staining or damage and extra care should be taken to treat these areas appropriately. Develop a list of things that the homeowner needs to do to help solve the problem, and communicate everything that relates to the flea problem and treatment. Identify pet bedding, human bedding or other articles that need to be laundered and indicate other preparations for treatment like removing clutter from floors, vacuuming, removing pet food bowls, and precautions for birds, fish or other pets.



Treating Another Common Bloodsucker: Ticks

One of the products in the SmartSolution for Fleas is also particularly effective on ticks, too. Prescription Treatment® brand **Cy-Kick® CS** Controlled Release Cyfluthrin is well suited for tick treatments involving applications to a variety of heavily foliated outdoor areas because of its low phytotoxicity. Studies have shown that, thanks to SmartCap™ technology, **Cy-Kick CS** can provide residual control of fleas for more than 90 days.

This residual is important because adult ticks can survive for months without feeding. Depending on the species (more than 80 have been identified), adult female ticks can lay clusters of hundreds or thousands of eggs in protected cracks and crevices. These eggs soon develop into six-legged larvae.

Larvae will crawl onto a host animal and begin feeding on its blood. When the larva is fully engorged, it drops off the animal and, several weeks later, emerges as a nymph. The nymph then repeats the process of crawling onto and feeding on a host animal. Adult ticks then repeat this process again.

Thorough residual surface application with **Cy-Kick CS** should be made to structure perimeters and to areas on property most likely to harbor ticks. These harborages usually include foundation plantings, dense garden beds, bushes, weedy areas, leaf litter or debris, tall grass areas, foundations, and fences. If animal hosts are present, treat places where they may encounter ticks as they rest or roam.

Provide Fast Relief From Adult Fleas

Non-Chemical

Vacuuming plays a very important role in the flea control process. Not only will thorough vacuuming remove many of the eggs, larvae and adults, but the suction and the vibrations from the beater-bar help trigger adult emergence from cocoons, where they otherwise would be protected from insecticide. It will also remove flea feces and bring up the pile of the carpet, which helps insecticides reach deep down inside the carpet where the larvae are found.

Vacuuming should include all floor surfaces, resting areas—including furniture, pet bedding and any other host—and associated articles that are not going to be laundered or discarded. Concrete floors in basements or garages where pets spend time should be vacuumed too. These areas are often overlooked.



Insecticides for Quick Knockdown and Residual Control

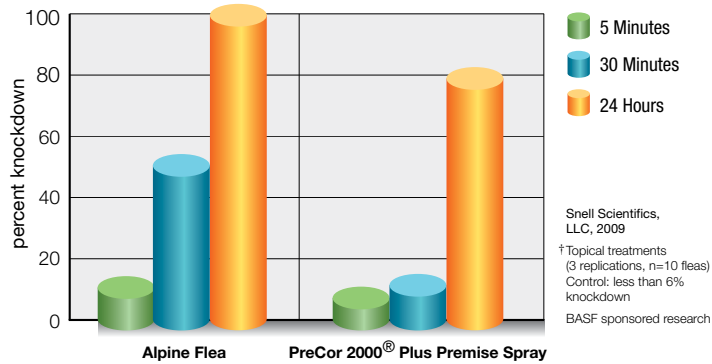
Factors to consider when choosing the right combination of flea control products include the need for quick knockdown, residual control, homeowner convenience, and application time and labor. The **SmartSolution for Fleas** combines four powerful BASF insecticides that deliver on all of these counts.



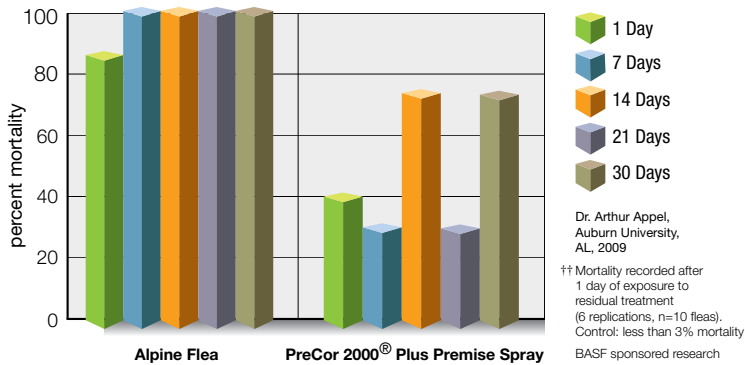
Prescription Treatment® brand **Alpine®** Flea Insecticide with IGR delivers quicker knockdown, longer-lasting control, and better affordability than many competitive flea control products. It includes the Reduced Risk* active ingredient dinotefuran for fast control of adult fleas, prallethrin for quick knockdown, and the IGR pyriproxyfen, which kills hatching eggs for up to seven months.

Because **Alpine** Flea Insecticide with IGR utilizes an advanced pressurized formulation, it won't soak carpets, reduces treatment time and labor (application can take just 15 minutes), and minimizes homeowner re-entry time.

Knockdown of Adult Cat Fleas on Carpet †



Mortality of Adult Cat Fleas on Carpet Treated X Days Previous ††



Prescription Treatment® brand **Cy-Kick® CS** Controlled Release Cyfluthrin kills adult fleas and

on-animal treatment can break up the flea development cycle in outdoor areas. Its microencapsulated formulation provides 90-day residual control on tough outdoor surfaces.

Prescription Treatment® brand **565 Plus XLO®** Contact Insecticide aids in knockdown and flushing. It's low-odor, synergized pyrethrin formula is ideal for use as a directed contact and space treatment.

Prescription Treatment® brand **Tri-Die®** Silica & Pyrethrum Dust is a naturally derived, fast acting desiccant dust with synergized pyrethrum. It aids in long-term residual control by creating an environment unsuitable for fleas.

Follow-Up

Once treatment is complete, vacuum all areas again.

Several days to a week or more following treatment, it is common to have some adults emerge from protective cocoons and find their way onto your customers or their pets. This is not cause for alarm, especially if your customer has been properly counseled on this common occurrence. This generally does not last more than a few days. In some cases, a follow-up treatment with a contact insecticide such as **565 Plus XLO** is appropriate to quickly knock down emerging adult fleas. However, the residual and IGR action of **Alpine** Flea Insecticide with IGR should kill these fleas and help to prevent a reoccurrence for many months.



Putting it All Together in a Program



These basic components of flea management should be combined in a custom-tailored program, assembled to meet the specific needs of each account.

The assembly of such a program should include the following steps:

- Step 1** Identify The Flea Species
- Step 2** Determine and Address the Source (Primary Host)
- Step 3** Identify Larval Development Sites
- Step 4** Assess Sensitive Situations and Involve the Homeowner
- Step 5** Implement Non-Chemical Controls
- Step 6** Apply Insecticides for Quick Knockdown and Residual Control
- Step 7** Follow-Up

*Dinotefuran, the active ingredient in Alpine insecticides, has been granted Reduced Risk status for public health use by the EPA.

Help Your Customer Help You

Communication plays a very important role in the **SmartSolution for Fleas**. You should help homeowners understand the big picture situation of the solution and give them specific guidance on preparations prior to treatment and realistic expectations following treatment.

It is an excellent idea to develop a checklist of preparations for your customer to follow with guidance on even simple things like what to do with the vacuum cleaner bag following vacuuming, how long to stay out of the home after treatment, what to do with fish tanks, birds or other pets during treatment, etc.

Sharing information about the biology and behavior of fleas is also worthwhile. It will give customers an appreciation for the importance of the preparations they need to make and help them understand the symptoms they see both before and following the treatment.

smart science + smart support = smartsolutions

As always, BASF Corporation is committed to giving you everything you need to tackle your toughest pest control challenges—not just in terms of products, but in terms of expertise and support as well.

You can always find helpful information, training, homeowner marketing support, and more at **PestControl.basf.us**.

The **SmartSolution for Fleas** is just one of many BASF SmartSolutions that address the pest control challenges and issues that have the greatest impact on our industry and the success of your business. To learn about additional SmartSolutions for termites, ants, bed bugs, cockroaches, rodents, occasional invaders, German cockroaches and flies, visit **PestControl.basf.us** or contact your BASF Pest Control Solutions sales specialist.



The Prescription Treatment® Approach

BASF Corporation believes a sound Integrated Pest Management strategy is the cornerstone of successful pest control and good stewardship. Our five-step Prescription Treatment® approach includes the core IPM practices you should always employ in conjunction with any BASF SmartSolution.

- 1 Inspect** to gather the information that leads to good decisions.
- 2 Prescribe** a treatment strategy to achieve specific goals in the account.
- 3 Communicate** with the client to promote cooperation, establish expectations, and convey value.
- 4 Treat** using effective techniques and materials that support the strategy.
- 5 Follow up** to assess results.

Always read and follow label directions.

www.PestControl.basf.us • 800-777-8570 • All products or logos denoted with ® or TM are registered trademarks or trademarks of BASF. © 2011 BASF Corporation. All rights reserved.