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With spring right around the corner, it's inevitable fleas and ticks, dormant in many areas of the U.S.,

will become active once again. These pests present a public health threat as many species are known to spread diseases to people and pets alike. Fleas and ticks, however, tend to be more difficult to pinpoint than other pests, making them challenging to treat.

For this reason it's imperative pest management professionals (PMPs) implement a seasonal integrated pest management (IPM) program targeting flea and tick control, especially in warmer regions where these pests can thrive year-round.

In the spring, treat tick zones such as foliage and tall grass, fences, stone walls and foundations, which are frequented by tick hosts such as mice and chipmunks. Also treat leaf litter to target ticks that emerge after over-wintering in leaf piles. To control fleas, it's important to treat areas where pets are often found, such as doghouses, kennels, sidewalks and paths. Indoors, some products can be used to target pet-friendly locations such as floors, carpets, upholstery, and cracks and crevices in floors.

In the summer, reapply treatment to flea and tick areas for ongoing control. Warmer weather means more time spent outside, and therefore an increased risk of exposure to flea- and tick-borne diseases.

Beware of dog (and cat)

Customers should have their pets treated with on-animal flea products at the same time as professional application to the premises.

Fleas are tough, but proper preparation and thorough treatment can be the key to beating them.

Doug VanGundy

Director of Technical Services

Central Life Sciences



Pet owners hate fleas as much as their pets do. Fleas can be harmful to pets, causing scratching and fur loss, tapeworm, bites that lead to anemia and even trips to the vet. Fleas also can be a nuisance to humans from their bites and by causing irritation. Flea control is a challenge, but pet owners can rely on PMPs to recommend best management strategies and product solutions.

Pre-adult fleas make up 99 percent of the total flea population. Flea eggs hatch and larvae develop in the nap of carpet, furniture, pet bedding and even the cracks in hardwood floors. When the larvae pupate and emerge as adults, the life cycle continues, creating further frustrations for people and animals alike.

PMPs must stress to customers how important it is for them to properly prepare before flea treatment. The outcome of any treatment is dependent on the prep work customers do before any flea products are applied. If they are diligent with the following, the likelihood of success increases: Remove loose items from floors; vacuum all areas of home; thoroughly mop all tile and wood floors; wash all pet bedding in hot water; bathe pets; cover fish tanks and unplug pumps.

Once customer prep is completed, PMPs can step in with product solutions, such as insect growth regulators (IGRs).



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The most common domestic flea in the U.S. is the cat flea (*Ctenocephalides felis felis*). Though it is capable of transmitting disease to humans, cat fleas are primarily a nuisance pest to humans and pets.

Unlike other fleas, adult cat fleas remain on their host. Females require a fresh blood meal to produce eggs, which easily fall from the pet onto the floor, bedding or lawn. Eggs hatch within two days and the developing larvae feed on dandruff, food particles and skin flakes on the floor. Adult flea fecal matter consists of relatively undigested blood, which also serves as food for newly hatched larvae. Fleas develop in areas protected from moisture and sunlight. The larval stage lasts five to 15 days, after which the larvae spin silken cocoons within carpet fibers or crevices, where they will pupate. Cocoons are sticky and easily camouflaged by local debris. Under optimal conditions, new adults emerge within two weeks. They develop faster at higher temperatures, but can remain in their cocoons up to 12 months.

The adult flea is the only stage that actually lives on the pet, feeding on fresh blood. They live four to 25 days.

Consider treating the yard by applying appropriately labeled insecticidal sprays in shaded areas where pets frequent. Flea larvae develop in shaded, humid areas and can be drowned by soaking the yard. A residual insecticide will keep future fleas from developing.

Bob Cartwright

Technical Manager

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Most ticks common to wooded/grassy habitats (such as American Dog tick or Lone Star tick), typically rest on tall grass and undergrowth. For these kinds of ticks, treatment should be targeted at this type of vegetation. Brown dog ticks however, are more closely associated with areas around residences or kennels where dogs rest. The target treatment area for these ticks is anywhere in and around the structure where ticks are likely to drop off a dog. Veterinary or client treatment of the animals is also critical to resolving a problem with brown dog ticks.

Because ticks are long-living and can survive extended periods of time, pest management professionals (PMPs) should use a product that is not readily broken down by light and withstands outdoor conditions.

Good coverage of the outdoor vegetation is critical; use either a high-volume spray or a low-volume backpack mist blower that moves the spray particles into the plant canopy. I often recommend customers use a combination of a microencapsulated pyrethroid and an insect growth regulator (IGR).

While a range of different chemistries are available to PMPs to help them do their jobs, the majority affect an insect's nervous system. IGRs offer distinctly different modes of action against insects compared with other insecticides.

Using insecticides with different modes of action can be an effective means to delay or avoid insecticide resistance. For tick control, choose a Juvenile Hormone Analog-type IGR. These products work by affecting the level and binding of juvenile hormone in the pests. The juvenile hormone is an essential compound used by insects to regulate development during the immature stages and also has a role in egg and sperm production and development in adult insects. These effects prevent the normal development of larvae and nymphs into adults, and help break the life cycle.

For more Supplier Tips & Tricks, visit the online gallery at www.mypmp.net/tipsandtricks.

Suppliers: Would you like to be considered for inclusion in an upcoming Tips & Tricks section? If so, contact Pete Grasso at pgrasso@questex.com.

An evolving discussion

Jim Fredericks • Contributor

Discussions surrounding bed bug management have evolved over the past 10 years — from surprise that a long-forgotten pest had returned, to concern at the rate at which infestations have spread. As with any evolutionary process, innovations have been introduced to the process, and some tried-and-tested technologies have been revisited. Along with targeted insecticide applications, steam, heat, carbon dioxide snow, vacuums, fumigation and other innovative technologies have emerged as options for battling bed bugs. As pest management firms experiment with new methodologies, novel questions are generated for the research community to tackle.



Turning up the heat

At National Pest Management Association (NPMA) PestWorld 2010 in Honolulu, University of Minnesota entomologist Dr. Steven Kells presented research that clarified common industry beliefs as it relates to the thermal death temperature of bed bugs. As previously reported in the late Dr. Robert Usinger's 1966 text, "Monograph of Cimicidae," bed bugs will die when exposed to temperatures of 113° F. However, Kells' research determined that it takes 90 minutes of exposure to kill adult bugs — and up to seven hours for eggs to succumb.

The combination of temperature and exposure time was further defined, with goals of 118° F for 90 minutes, 120° F for 60 minutes, or 122° F for instantaneous death. This information was useful not only to firms using container and whole-room heat treatments, it was also instructive for those incorporating localized steam treatments into their integrated bed bug management services.

'How dead is dead?'

The research community is even beginning to provide answers to questions their predecessors didn't even know they needed to ask. For instance, University of Florida entomologist Dr. Faith Oi presented research that answered questions regarding bed bugs, including: "How dead is dead?" and "Does a dead bed bug smell different than a live bug?"

It turns out these are questions that are extremely important to firms using bed bug scent detection canines to determine whether management efforts have been successful. Because the dogs are not using the same senses we think of when inspecting for live bed bugs, a bug that is visibly dead might smell like a live bug initially, but after a short period of time, it takes on a different odor.

To learn more about NPMA's Best Management Practices for Bed Bugs, listen to an interview with Jim Fredericks at www.mypmp.net/npmmapodcast2.

Task force produces BMPs

The most recent chapter in the evolution of bed bug management is the development of Bed Bug Best Management Practices (BMPs) by the NPMA's Blue Ribbon Bed Bug Task Force. Authored and edited by some of the brightest minds in the industry, including representatives from pest management firms, research universities and the regulatory community, the BMPs are intended to present the methods that have proven to be most effective in controlling bed bugs. **pmp**

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