Challenges Separate The Winners From The Have-Nots
By Austin Frishman Page 4

Can I Be The Problem?
By Lloyd Merritt Smigel Page 8

Are Dusts The Bed Bug Bullet?
By Michael F. Potter Page 12
The 2010 Nevada Pest Control Association EXPO was an enormous success and I want to thank our members for attending. I also want to thank our volunteers and sponsors. Every year they step up to the plate and I am forever thankful for their hard work and participation. Overall attendance was up from 2009 and it’s obvious that we are sending a strong message to the rest of the industry. The members of the NPCA want to be part of an organization that brings in quality presenters who provide cutting edge information. Our members want to receive leading product information directly from the manufacturer. They want their clients to know that they are receiving training from top entomologists in the industry, allowing them to provide a superior quality of service.

There was a recent incident in the state of Utah where a Pest Control Operator incorrectly applied a rodenticide which resulted in the death of a four year-old girl and her 15 month-old sister. Allegedly the product was not applied according to label directions. The training this PCO received has not yet been made public. However, when product is allegedly applied at over ten times the label rate, it’s obvious the training was minimal at best.

In my 16 years in the industry, I have found that documentation and training are the two most important factors in Pest Management. As business owners we have a lot on our plate every day. It can become overwhelming, however our increased responsibilities should not compromise our training policies and procedures. Not only do owners have a responsibility to train their employees, but it is just as important that the employees adhere to the training and procedures that they have been taught.

Implementing a training program can greatly reduce your chances of having an accident or an employee incorrectly applying a product. My company has a training calendar that we set up in December for the following year. Although we have weekly training meetings with all employees, you can ensure your team is taking part in training at least once every month by setting up a monthly training calendar in December for the upcoming year. The product manufacturers and distributors are very supportive and would be happy to come out to your office and perform an in-house training. All you have to do is give them a call and set up a time for them to come out. The NPCA will also be offering additional training this year. Watch your e-mails for dates and times. Our Bee Control class is scheduled for April 29th at The Orleans Hotel.

There is an old saying that says, “It’s all fun and games until someone gets poked in the eye.” As an industry we have complete control over the work we perform and our application techniques. Following label directions and applying products correctly is not only what our customers expect and deserve, it’s “the law.”
Do not give up on a tough account. Use it as a learning experience. When you feel that you have no more answers, here are a few options to consider.

- Ask your distributor for advice and request a visit to the site.
- Go back to the manufacturer of your product for advice.
- Confer with other technicians and ask for their opinion.
- Pick up the phone and call a friendly competitor who may have encountered a similar situation and has the advantage of past experience.
- Make sure not to repeat the same technology you already used. If it does not work once, it will not work a second time.
- New populations may be entering from an adjacent property. Look further than just your account.
- Call an expert you know for advice, and if necessary, have them look at the account.
- Check with an appropriate University Extension Agent. If you contact the right one, they may know a great deal about your situation.

Here are a couple of unusual situations where the PMP almost gave up.

**Situation 1:**
What looked like a routine service, turned out to be a nightmare. The house was five years old. The original insulation was installed loaded with silverfish. They now were found in every room and were falling from the ceiling onto people’s heads. It took six months of baiting, dusting and careful sealing to keep them from entering the living quarters. Even the undersides of the roof shingles had to be dusted.

**Situation 2:**
American cockroaches were showing up in considerable numbers (50+) every night in the basement of a home. Most were caught in glue boards. Baiting, dusting and crack/crevice treatments did not work. It didn’t even slow them down, except to see some dead on the floor. However, the numbers were not diminishing. When you have that many cockroaches, look to the sewer or cesspool area. The problem will not be resolved until you reach the source. Drione can be dusted into the target area. Screening them off is also a possibility in many situations.

In order to get difficult jobs done completely, it is important to be willing to look beyond yourself. You need to utilize all available resources to turn those challenges into victories – for yourself and your company.

By Austin Frishman, Ph.D., B.C.E.
President
AMF Pest Management Services, Inc.

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- President
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CONTROLLING OFFICE MICE

By Bobby Corrigan, Ph.D
RMC Pest Management Consulting

The house mouse, (Mus musculus) has this name because it is the mouse that most invades and adapts to the "houses" of humans. The term "house" is used loosely however to also represent restaurants, hotels, food plants, schools, apartments, grocery stores, and to the point of this article, office buildings. This rodent commonly occurs in office buildings and other commercial facilities throughout Nevada. Depending on the specific office building, mice can become well established in these environments. In this article, we examine why this is so, and how Nevada pest professionals can effectively control office mouse infestations.

Nest and Travel Locations

Once inside office buildings, the "house (now office) mouse" commonly establishes their nests among those areas that generate warmth or where the mouse can use insulated items and areas to keep warm. Five areas are common nesting locations for office mice: 1) within desks drawers; 2) within stationary boxes inside rooms and cubicles; 3) within cubicle wall bases; 4) inside break room cabinets and appliances (e.g., refrigerators, ovens, vending machines); and, 5) within the voids associated with any heating registers. I once uncovered 23 mice living inside one "messy" cubicle in an "old project" box beneath a manager's desk.

Additional nesting locations include furniture (e.g., couch bases), filing cabinet bases, the voids of ceilings, floors, support pier columns, and appliances (e.g., refrigerators, ovens, vending machines); and, 5) within the voids associated with any heating registers. I once uncovered 23 mice living inside one "messy" cubicle in an "old project" box beneath a manager's desk.

The home range of an office mouse tends to be about 10-30 feet from their nest. They forage about by running through the cubicle bases and/or by hugging the exterior bases of the cubicles, or the partition walls of the office floors.

Office Mouse Food

As a PMP, you know that only 1/10 ounce (3-4g) of daily food is required to sustain a mouse. The food bits associated with office break room spillage of busy office employees are plenty to sustain multiples of mice, depending on the thoroughness of the cleaning by the employees and the custodial staff. What's more, many harried employees save time by eating and snacking at their desks. These same employees store all types of foods in their desk drawers (e.g. candies, granola bars, crackers, instant soups, nuts, dried fruits, etc.). Among any office building, it is common to find upwards of 35% of all desk surfaces to contain bits of these human snacks. With the arrangement of cubicles, a mouse often has easy access to four or more cubicles in a hurry. (They can scurry about the offices at night at 7 ft. per second.)

Managing Office Mice

1. Office Employee Cooperation

Because office mice are essentially 100% dependent on the office employees for their food, it should be obvious that it would be difficult for any PMP to gain control without first gaining employee cooperation. Pest professionals must tactfully explain to the company management that full cooperation of all office employees is essential. All cluttered and messy desks and drawers must be cleaned out and the drawers inspected for mouse activity and associated excrement. If employees want to store food in their desks, the food must be stored in Tupperware or similar types of pest proof containers. Company management must enforce this. Prompt clean-ups and proper storage practices will ensure the mice will investigate traps or rodenticide baits as discussed below.

2. Establish mouse sighting logs

A mouse sighting log will help to profile the infestation by organizing the sightings over the course of weeks and months together with any mouse captures on traps. If the sightings are plotted on a simple diagram, it can aid in pinpointing sources of infestations.

3. Trapping programs

Snap traps, multiple catch traps and electronic shock traps can all be used successfully within office complexes. With snap traps, sufficient numbers of traps should be used to make the campaign short and decisive. For example, setting 4-6 traps within each cubicle exhibiting mouse activity is not too many. A dozen or two traps set throughout an infested break room is a typical setting. Traps should be installed in these specific spots where droppings and/or mouse trails are evident. Any snap traps should be installed into trap stations (e.g., inexpensive cardboard box "stations" are ideal for this).

4. Rodenticide baits

Baits and bait stations can also be used against office mice. However several considerations are important:

(a) Baits should not be used for clean outs of large infestations because of the possible odors associated with a quick die off. For severe infestations, it is best to use trap reduction first, followed by maintenance baiting. Traps for large infestations can be left in place unset during the baiting program, and then reset after a week or two of baiting.
(b) Restrict the use of baits to wall and floor voids and other areas where any carcass odor will be minimized.
(c) Only meal or block formulations can be installed into tamper-resistant triangular bait stations, which will reduce the chances of baits being translocated out of the stations. Pelleted baits must never be used, because they are often transported by mice and may end up on or in employees' desks.

Tracking powders

Tracking powders are not an appropriate tool for office mouse infestations (especially for severe cases). The reason for this should be obvious: any mouse traveling through the powder carries the powder on their feet and pelage. As the mouse travels, the powder will shake off onto desks, carpeting, furniture, and various office items and areas where employees may walk, sit, or place their hands.

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We all have our shortcomings and if they are not pointed out to you – you continue on that road. Some refer to this as the Bad Breath Window. Everyone knows you have bad breath but no one will tell you - I will. Ironically, I do this out of respect for you. If you come across as an ogre, but in reality you are not, you should know about it and find ways to work with or change that image.

One company I worked with had a boss that was cheap (He thought he was frugal) that he wouldn’t buy his people new uniforms and told them to stitch up the tears, holes, etc. He didn’t even put his name or logo on the trucks. And yet, he was quite profitable. (I know, THAT’s why he was profitable). Maybe - maybe not.

One owner told me he loved turnover – he liked working with “Fresh Meat.” He said, “When they learn too much, they think they own the company.” He barely was making any money and had zero growth.

Another owner could not make any decisions and was a nice guy but was driving the employees nuts. He was reviewing (for about 10 years) whether or not he wanted to switch from B&G’s to IPM Service. Another owner was way too quick to fire. Ready, Fire, Aim. It was a big problem. Another owner could not make any decisions and was a nice guy but thought he was frugal) that he wouldn’t buy his people new uniforms and told them to stitch up the tears, holes, etc. He didn’t even put his name or logo on the trucks. And yet, he was quite profitable. (I know, THAT’s why he was profitable). Maybe - maybe not.

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After many years as a Management Consultant in this industry (and partner with two companies, as well) - I have seen a list. I have been to hundreds of Pest Control companies all over this country and a few other countries as well.

One of the hardest situations that I have to deal with is when the problems in that company are caused by the owner/manager.

It is my job to inform them of that. This is not an easy position to be in, but I represent the company - not the owner. Someone needs to point out the problems from an unbiased opinion and that’s what I have to do. I do this one on one and as diplomatically as possible. In 20 years, I have had two or three situations arise where they were not pretty. One of those companies was sold (although there were capable family members that could have run it) and one went bankrupt.

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Dogs have been used very effectively for the detection of a wide variety of things including drugs, bombs, fugitives, cadavers, mold, and termites just to mention a few. So why not bed bugs? There is canine scent detection for bed bugs and these dogs can be very effective; however, every bed bug detection dog and handler team is different from the next. You need to find out exactly what you can expect from the team that is performing the inspection. A well-trained bed bug detection dog should be able to identify very small numbers of live bed bugs, sometimes as few as one. Additionally, the dogs should be able to discriminate live bugs and viable eggs from evidence left over from an old infestation (fecal spotting, caste skins, empty egg shells, carcasses). Unless they are able to do this, it becomes much more difficult to distinguish between active and old infestations.

Some trainers cross train dogs to detect multiple scents, which may make it difficult to interpret a dog’s alerts. How do you know whether the dog is alerting on the scent of mold or bed bugs if it has been trained to detect both? Like any other inspection tool, scent detection has shortcomings and is not always definitive. Nevertheless, scent detection adds a new dimension to the inspection. Bugs that might escape visual detection by a human may be detected by a bed bug sniffing dog and vice versa. Look at it this way: Bed bugs can be so difficult to detect that different methods may prove the most useful from one location to the next. The more bed bug detection tools you can deploy, the more likely you are to detect infestations early when bed bugs are the easiest to control.

Human inspectors depend on their eyes, so an inspection is limited by what is visible to the inspector. Scent dogs depend on their noses, so their “inspection” is limited by what they can smell. Sometimes, bed bugs can be present but the odor is simply not available to the dog. The reasons for this vary, but the three most significant factors include the location of the bugs, air flow and temperature.

If bed bugs are located well above the dog’s head, and the air flow is pulling the scent upwards, the dog may not alert. Therefore, it is not always definitive. Nevertheless, scent detection adds a new dimension to the inspection. Bugs that might escape visual detection by a human may be detected by a bed bug sniffing dog and vice versa. Look at it this way: Bed bugs can be so difficult to detect that different methods may prove the most useful from one location to the next. The more bed bug detection tools you can deploy, the more likely you are to detect infestations early when bed bugs are the easiest to control.

THE MECHANICS

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If bed bugs are located well above the dog’s head, and the air flow is pulling the scent upwards, the dog may not alert. Therefore, it is entirely possible for bed bugs to be in plain view high up on the wall or along the ceiling and not be detected by the dog. This is this type of “failure” that cause some to doubt the utility of scent-detection dogs. However, there are just as many situations where the dog will alert on bed bugs that are difficult or unlikely for an inspector to find: an outlet with a bug or two behind it, a baseboard that has a few bugs behind it or eggs hidden along a carpet tack strip. A scent-detection dog can go under a bed and alert on bugs inside the box spring without an inspector having to take the mattress and box spring off. The dogs can alert to bed bugs behind a heavy entertainment center without anyone having to move it and can detect bed bugs or their eggs in a pile of clothing or a toybox full of stuffed animals.

What should be your response when the dog alerts? Do not put all of your trust in the dog’s nose. Try and confirm the presence of live bugs or viable eggs in the area that the dog indicated. If you are going to inspect areas to confirm the dog’s findings, you will need to remove the mattress and box spring, take off the outlet switch, pull up the carpet, remove the baseboard, empty and move the entertainment center, and go through the pile of clothing and stuffed animals where the dog alerted. This can be done but obviously this adds time and money to the inspection.

Naturally, there is no guarantee that you will be able to find the bug(s) or egg(s) that the dog alerted on. If the evidence is inaccessible, or you simply fail to see it, you will not be able to visually confirm the alert. Also, the dog is alerting on a “scent picture,” and while it will often be right where the bugs or eggs are, there is also the possibility that it is not. Scent travels with air, sometimes for significant distances. (Anyone who has tried to identify the location of a dead animal within the walls of a room knows this all too well.)

A multiple-dog approach can help overcome some of these issues and often adds to the level of certainty needed for both the handler as well as the contracting party. For example, if the first dog alerts, indicating that bed bugs are present in various locations, then a second dog is brought in to inspect the area and to see if it, too, alerts in the same vicinity as the first dog. Still, you must decide what you are going to do with this information. One option is to say that a double positive result, one dog alerts and the second does not could be viewed as reason to perform a visual inspection in an effort to find bugs or eggs. If a visual inspection fails to reveal evidence of a live infestation, you must decide whether or not you are going to trust the first dog or not.

Bed bug scent detection is not perfect. The contracting parties should agree in advance as to what methods will be used and how the information will be interpreted. Questions to be considered include the following:

- Will they rely on the dog’s detection alone?
- Do they want a second dog for confirmation purposes?
- What if there are mixed results between multiple dogs?
- What circumstances will mandate a detailed visual inspection to confirm the dog’s alert?
- How will they handle situations where the presence of bed bugs could not be confirmed through visual inspection?

SCENT DETECTION CANDIDATES

Canine scent detection is useful for routine inspections of rooms in hotels, college dormitories, cruise ships, group homes, shelters or any other high-risk environment. Such inspections should be in addition to basic visual inspections being conducted by in-house staff. Since the inspection.

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FOUR-LEGGED BED BUG DETECTIVES

A well-trained bed bug detection dog can greatly assist pest management professionals.

By Richard Cooper
Technical Director
Cooper Pest Control
Dusts have been used for pest management since the beginnings of recorded time. Primitive tribes (as well as birds and other animals) instinctively took “dust baths” to fend off lice, mites, and other parasites residing in their hair, fur, or feathers. Early civilizations also used clay and other dusty materials to protect grains and nuts from insect attacks during storage.

Dusts likewise have a long history of being used to manage bed bugs. Diatomaceous earth was used to kill bed bugs and other vermin for thousands of years. Pyrethrum powder also was used long ago, and travelers often carried it with them to dust between the sheets in hotel rooms. Even DDT was formulated as a dust for bed-bug control, although sprays generally were more popular.

Today’s lack of reliable bed bug products requires that we consider all options for elimination. While much has been said about sprays, little has been reported on the efficacy of dust formulations. This article presents some of our initial findings and discusses the increasingly important role dusts might play in bed-bug management programs.

**Study Methods**

Four different bed bug populations were exposed to insecticide dusts in the laboratory. Two of the populations (CN-1 originating from Cincinnati, and NY-1 from New York) were previously determined to be highly resistant to pyrethroids. We evaluated a third field population from Los Angeles (LA-1) deemed moderately pyrethroid susceptible. For comparison, we also tested the susceptibility of a fourth population originating from Fort Dix, N.J., that had been maintained by Dr. Harold Harlan for more than 30 years without exposure to insecticides.

For comparison, we also tested the susceptibility of a fourth population originating from Fort Dix, N.J., that had been maintained by Dr. Harold Harlan for more than 30 years without exposure to insecticides. While abrasive dusts such as diatomaceous earth also were effective, highly abrasive dusts (e.g., silica aerogels) generally were the most potent under practical pest control conditions. It should be noted that boric acid is not considered a desiccant and presumably has little effect on bed bugs since it must be ingested. None of the aforementioned dusts kill insects by clogging the breathing pores (spiracles) as is sometimes erroneously believed. Drione and Tri-Die formulated as bulk dusts also contain pyrethrin, pyrepermoxide and petroleum distillate, which may further contribute to the effectiveness of these products against bed bugs.

Unexpected in our study was the outcome with pyrethroid dusts – especially Tempo, which killed all bed bugs from both non-resistant and resistant populations within 24 hours. DeltaDust had a similar rapid effect against pyrethroid susceptible populations (Fort Dix and LA-1), but took longer to kill resistant strains (CN-1 and NY-1). How variable results occurred with DeltaDust depending on the resistance level of the population. While most bed bugs in the pyrethroid susceptible LA-1 and Fort Dix strains died within 24 hours, more than a week was needed to kill 100 percent of the bugs from the resistant New York strain and two weeks to kill 93 percent from the resistant Cincinnati strain. MotherEarth D (diatomaceous earth) was slower acting than Tempo or Drione, but caused substantial (>90 percent) mortality of susceptible and resistant bed bugs within four days and all bed bugs were dead after 10 days. Mortality was notably lower with lime-based NIC 325 on all populations tested and did not exceed 50 percent even after 15 days of continuous exposure.

**Results**

Tempo Dust killed 100 percent of the bugs from all four populations within 24 hours of exposure – a surprising outcome considering that two of the strains (NY-1 and CN-1) were highly resistant to pyrethroids formerly administered as liquids. Drione, which includes silica gel, pyrethrins and piperonyl butoxide also produced 100 percent mortality of all populations, although 72 hours were needed to kill all bugs in the two resistant strains from New York and Cincinnati. Variable results occurred with DeltaDust depending on the resistance level of the population. While most bed bugs in the pyrethroid susceptible LA-1 and Fort Dix strains died within 24 hours, more than a week was needed to kill 100 percent of the bugs from the resistant New York strain and two weeks to kill 93 percent from the resistant Cincinnati strain. MotherEarth D (diatomaceous earth) was slower acting than Tempo or Drione, but caused substantial (>90 percent) mortality of susceptible and resistant bed bugs within four days and all bed bugs were dead after 10 days. Mortality was notably lower with lime-based NIC 325 on all populations tested and did not exceed 50 percent even after 15 days of continuous exposure.

**Implications**

It was encouraging to see the high levels of mortality achieved with some dusts on the market, especially against bed bug strains that are highly resistant to pyrethroid sprays. The results were perhaps less surprising with Drione and MotherEarth, which cause desiccation and death by removing the ultra-thin, protective layer of wax from the outside of an insect. Recent studies have shown that bed bugs are adept at conserving moisture, which is the main reason they can survive so long (a year or longer depending on conditions) without a blood meal. Our findings suggest this survival tactic can be overcome by exposure to dust desiccants, a vulnerability that may be worth exploiting to a greater extent in bed bug management.

There are two main mechanisms by which dusts can desiccate insects. Like superfine sandpaper, certain dusts, including diatomaceous earth, kill principally by abrading the protective outer layer of wax as the insect crawls over or through the abrasive particles. Silica gels contained in Drione and Tri-Die function more like a sponge, absorbing the ultra thin lipid layer onto the particle matrix. In the 1960s, PMP Hall of Famer Dr. Walter Ebeling and other researchers found that absorptive dusts (the most effective tested being silica aerogels) were lethal to cockroaches, drywood termites and other household insects. While abrasive dusts such as diatomaceous earth also were effective, highly abrasive dusts (e.g., silica aerogels) generally were the most potent under practical pest control conditions. It should be noted that boric acid is not considered a desiccant and presumably has little effect on bed bugs since it must be ingested. None of the aforementioned dusts kill insects by clogging the breathing pores (spiracles) as is sometimes erroneously believed. Drione and Tri-Die formulated as bulk dusts also contain pyrethrin, piperonyl butoxide and petroleum distillate, which may further contribute to the effectiveness of these products against bed bugs.

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It was encouraging to see the high levels of mortality achieved with some dusts on the market, especially against bed bug strains that are highly resistant to pyrethroid sprays. The results were perhaps less surprising with Drione and MotherEarth, which cause desiccation and death by removing the ultra-thin, protective layer of wax from the outside of an insect. Recent studies have shown that bed bugs are adept at conserving moisture, which is the main reason they can survive so long (a year or longer depending on conditions) without a blood meal. Our findings suggest this survival tactic can be overcome by exposure to dust desiccants, a vulnerability that may be worth exploiting to a greater extent in bed bug management.

There are two main mechanisms by which dusts can desiccate insects. Like superfine sandpaper, certain dusts, including diatomaceous earth, kill principally by abrading the protective outer layer of wax as the insect crawls over or through the abrasive particles. Silica gels contained in Drione and Tri-Die function more like a sponge, absorbing the ultra thin lipid layer onto the particle matrix. In the 1960s, PMP Hall of Famer Dr. Walter Ebeling and other researchers found that absorptive dusts (the most effective tested being silica aerogels) were lethal to cockroaches, drywood termites and other household insects. While abrasive dusts such as diatomaceous earth also were effective, highly abrasive dusts (e.g., silica aerogels) generally were the most potent under practical pest control conditions. It should be noted that boric acid is not considered a desiccant and presumably has little effect on bed bugs since it must be ingested. None of the aforementioned dusts kill insects by clogging the breathing pores (spiracles) as is sometimes erroneously believed. Drione and Tri-Die formulated as bulk dusts also contain pyrethrin, piperonyl butoxide and petroleum distillate, which may further contribute to the effectiveness of these products against bed bugs.

Unexpected in our study was the outcome with pyrethroid dusts – especially Tempo, which killed all bed bugs from both non-resistant and resistant populations within 24 hours. DeltaDust had a similar rapid effect against pyrethroid susceptible populations (Fort Dix and LA-1), but took longer to kill resistant strains (CN-1 and NY-1). How variable results occurred with DeltaDust depending on the resistance level of the population. While most bed bugs in the pyrethroid susceptible LA-1 and Fort Dix strains died within 24 hours, more than a week was needed to kill 100 percent of the bugs from the resistant New York strain and two weeks to kill 93 percent from the resistant Cincinnati strain. MotherEarth D (diatomaceous earth) was slower acting than Tempo or Drione, but caused substantial (>90 percent) mortality of susceptible and resistant bed bugs within four days and all bed bugs were dead after 10 days. Mortality was notably lower with lime-based NIC 325 on all populations tested and did not exceed 50 percent even after 15 days of continuous exposure.
Beds Bugs - Continued from page 12

these products managed to kill pyrethroid resistant bed bugs is still under investigation. Possibilities include enhanced uptake of pyrethroid active ingredients or mortality resulting from other “inert” components of the formulation. Dust formulations often contain additives (diluents) which serve as carriers, fillers, extenders or dispersants. Some of these presumed inert ingredients may also have insecticidal action against bed bugs and could warrant further evaluation by manufacturers.

Rethinking the Role of Dusts

Many companies currently use dusts when treating for bed bugs (PMP, January 2008, pg. 24). Treatment typically is to such areas as behind outlets and switch plates, beneath basesboards and carpet edges, and to the inner framework of couches and box springs. Pressurized dusts (e.g., Tri-Die) also are injected into cracks and crevices. Firms often are hesitant to apply dusts more extensively for bed bugs because they can be messy when used liberally, especially in living areas.

Nonetheless, dusts have important characteristics that help in managing bed bugs. Perhaps foremost, they appear to be one of the few insecticide options available today that retain their effectiveness as a residual deposit. Most liquids we’ve tested against field populations kill mainly upon contact, i.e., for maximum effectiveness the bugs must be sprayed directly. In commercial practice, this is often hard to do because some bed bugs remain hidden. Moreover, few products destroy the eggs. Consequently, treatments lacking residual action must be reapplied to control both bugs that were missed and any newly emerging nymphs. Dust formulations such as those containing silica gel or diatomaceous earth retain their potency for many months or years when applied into wall and cabinet voids — and presumably would do the same under baseboard and carpet edges, the inner framework of box springs and sofas, and in other “buggy” locations. The physical properties of dust particles enable them to be picked up readily by crawling insects. In our lab studies, we have noticed that barely visible deposits still result in an accumulation of dust on the underside of a bed bug, especially toward the rear of the abdomen. Unlikely deposits may be vacummed up after four to six hours from mattresses, upholstered furniture and other human contact surfaces. Diatomaceous earth (e.g., MotherEarth D) currently does not include treatment guidelines for bed bugs, although future labeling also may be permissive.

Desiccant dusts such as silica gel and diatomaceous earth have notably low toxicity to humans. Nonetheless, any dust insecticide should be applied with care, especially within living areas. Just as odor can trigger concern following spray applications, the presence of white powder can be perceived as dangerous whether it is or not. Companies deploying dusts should try not to leave visible traces on floors or other surfaces. They also would be wise to carry a vacuum and promptly remove any visible deposits.

Battery-powered or electric dusters such as the Exacticide or Techniduster (Technicide in San Clemente, Calif.) or PowerPuff (Gremar in Des Moines, Iowa) efficiently deliver fine dust deposits that are often harder to achieve consistently with a hand duster.

Final Thoughts

History provides important lessons on the most effective methods to eradicate bed bugs. While many of the same non-chemical approaches (vigilance, laundering, heat, cold, bug-proofing, community education) were employed then as they are now, it was residually potent insecticides — initially DDT, followed by malathion, diazinon, etc. — that caused this detested household pest to all but disappear for the first time in centuries. One thorough application of these older insecticides usually did the job since bugs residing in hidden locations and nymphs hatching from eggs succumbed after resting or crawling on previously treated surfaces. Lacking similar residual potency with most of today’s sprays, dust formulations could play an increasing role remedially and for prevention in selected places where bed bugs initially tend to seek harborage.

As we await the next bed bug “silver bullet,” dusts may buy us some time. It would be fitting indeed if such ancient tools helped defeat such an ancient pest.

Article courtesy of PMP magazine
FROM THE ASSOCIATION

The Nevada Pest Control Association would like to welcome the following new members.

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By Lee Lawrence
Nevada Department of Agriculture - Sparks Office

The most common serious violations involve licensing issues. The Nevada Department of Agriculture's Pest Control Regulatory Corner Series has discussed the consequences of licensing violations in previous articles. These violations can result in serious fines and can affect the ability of a pest control company to do business in Nevada.

Licenses are required to be obtained and maintained by all pest control companies operating in Nevada. The Department of Agriculture, through its Pest Control Division, is responsible for enforcing the laws and regulations governing pest control activities. The division has the authority to investigate complaints, conduct inspections, and impose fines and other penalties for violations of the laws and regulations.

Licenses are issued to pest control companies for a specified period of time, and they must be renewed annually. Failure to renew a license or failure to maintain a valid license can result in the company being unable to perform pest control services in Nevada.

In addition to licensing violations, other serious violations can include the improper use of pesticides, failure to comply with regulations governing the use of pesticides, and failure to maintain appropriate records and documentation. These violations can result in fines, the issuance of warnings, or the suspension or revocation of a license.

When a violation occurs, the Nevada Department of Agriculture's Pest Control Division issues a Notice of Non-Compliance to the violator. If the violator is not a Primary Principal, the notice usually contains an order to correct a nonserious violation (NAC 555.2547). In the field, a nonserious violation is usually handled by an NDOA inspector who issues a “Notice of Non-Compliance” to the violator. If the violator does not realize that a Notice of Non-Compliance is essentially a “warning” and does not correct the violation, a fine will most likely be assessed. Warning letters are still used, and may be used in a variety of different situations.

Serious violations are defined in NAC 555.2567 as any violation within the pest control regulations for which the inspector did not realize while in the field, a fine will most likely be assessed. Warning letters are used in a variety of different situations. Serious violations can result in serious fines and can affect the ability of a pest control company to do business in Nevada.

When a fine is assessed, the violator must pay it within a specified time period. If the violator does not pay the fine within the specified time period, the Department of Agriculture may issue a warrant for the collection of the fine.

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For more information on licensing and other pest control regulations, contact the Nevada Department of Agriculture's Pest Control Division at 702-687-9678 or visit their website at www.ndoa.wv.gov.
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