

# Technology & Technique Tips

As the battle against cockroaches heats up, training for control technologies and techniques becomes mission critical.

*Editor's Note: This is Part III of PMP's exclusive three-part series of excerpts from the upcoming Cockroach Combat Manual II, written by Dr. Austin M. Frishman and Paul Bello. The first installments appeared in the June and July issues of PMP.*

**"Cockroach Combat Manual II" Excerpt By**  
Dr. Austin M. Frishman & Paul J. Bello

Looking back at our years of industry experience have afforded those who grew up in the industry since the 1970s a perspective of change. Chlorinated hydrocarbon-, carbamate- and organophosphate-based insecticide products, as well as monthly baseboard spray applications, are long gone. Long-term residual insecticides are a thing of the past, and the contents of our collective industry toolbox is almost unrecognizable compared to years ago. Clearly, the industry has come a long way. But are we, and our customers, better off? Sure we are, and with good reason. As Doc Frishman has often said, "You can be on the right track, but you can get run over if you're not moving fast enough or headed in the wrong direction." Those who've paid attention have learned and progressed along with the industry. Those who haven't have been left behind or relegated to a spray-and-pray strategy.

**The power behind the equipment**  
Today's cockroach warrior is armed with numerous tools such as:

bait gun;  
high-efficiency particulate air (HEPA) vacuum;  
light-emitting diode (LED) flashlight;  
compressed air sprayer;  
duster;  
stepladder;  
knee pads;  
inspection mirror;  
injection application equipment; and  
low-environmental-impact type of pesticide products.

However, even a well-equipped army can be hard-pressed to achieve optimal success if it doesn't know what it's doing.

"Give me a great technician and a mediocre product, and I'll take that any day over a poor technician and a great product," Frishman says. "Greatness is an attitude, and with that attitude comes an eagerness to learn and a high energy level to get the job done correctly."

To help fine-tune these skills, we've included baiting and dusting to optimize results.

## Why baits work

Cockroach baiting isn't new. In Bello's student days, he was fortunate to visit Dr. Frishman at home, where he was conducting early trials for a product concept that would eventually become Combat cockroach bait. Before that, there had been numerous mixtures created to kill cockroaches. However, current cockroach bait products are superior.

It's impossible to find and reach all hidden harborage in an account, especially if clutter exists. Some cockroach baits kill slowly, which allow some toxicant to pass through the insect's gut and be excreted in its droppings. Young cockroach nymphs, also called first instars, feed on these droppings and die.

"The older cockroaches do us a favor and bring the toxicant to where the young hide," Bello says. "We'd likely never find or reach them without an inordinate amount of additional effort."

While cockroach baits work best after ingestion, some bait products can kill cockroaches that just touch it. Whichever cockroach bait is your choice, you can optimize the results by using it properly. Two tips, regardless of treatment type, are:

**Vacuum high numbers of cockroaches before installing.** If you don't, the roaches might use the bait tray as harborage and defecate over the bait rather than feed on it. They then stop eating the bait. Use a HEPA vacuum to ensure you're not contributing to the overall distribution of cockroach allergens within the account. As a bonus, vacuums can remove large numbers of cockroaches from infested locations fairly quickly, which enhances the results attained with your other control methodologies, including bait placements.

### Use sticky traps to help

**A HEPA vacuum eliminates numerous cockroaches from an account and enhances long-term control.**

**Excerpt 1** (June *PMP*):  
Cockroach Biology  
& Behavior

**Excerpt 2** (July *PMP*):  
Worst-Case Scenarios

**Excerpt 3** (August *PMP*):  
Technology & Technique Tips

**select bait** placements because they help determine where population aggregations are.

See "Tray baiting tips," page 22, and "Gel baiting tips," page 24, for additional in-depth tips about each technique.

## Using dusts for control

Insecticide dusts are another excellent choice to include for cockroach control because they can provide thorough treatment to almost all surfaces within a hidden void where cockroaches might harbor or travel. Dusts also are capable of providing long-term residual control. However, it's important to apply dusts properly to achieve optimal results. A few tips:

**Dust lightly.** Dusts are overapplied often. Think less is more.

**Confine dust to voids and cracks and crevices where cockroaches hide.** Apply dusts to those areas where it's best suited.

**Don't dust above suspended ceilings, near compressors and other areas where air movement will cause drift.** Dust applied to such areas might result in subsequent exposure to other persons or contamination because of the





Careful and strategic application of gel type bait to areas where cockroaches will encounter and feed on the baits is an effective for cockroach control.

translocation of applied dust.

**Don't keep dusting in the same areas.** Dusts provide long-term residual, and it might be unnecessary to reapply to previously treated areas.

**In humid areas, select dusts that hold up.** Dusting in Arizona is different than in Mississippi, for example. Certain dust products are better suited in areas with high humidity than others.

**Don't dust near an open flame or where electrical sparks can occur.** Fire and explosion hazards can be a concern when applying dusts.

**Label the duster by keeping it in a sealed plastic bag, and label the bag.** Always store pesticides and application equipment securely.

**Use two smooth pebbles or marbles in the duster to prevent dust from clumping.** Much like paint sprays that have a ball bearing enclosed to enhance agitation, pebbles or marbles placed in a duster can keep the dust free-flowing.

**Attach flexible hose of suitable length to the tip of the duster.** This allows you to treat in different directions in the void. Plastic tubing is widely available in various sizes and aquarium-type hoses can be adapted for such use.

**Wear goggles when dusting overhead, as well as a respirator and gloves if the label calls for it.** Always read and follow label directions, and follow all personal protective equipment (PPE) recommendations.

*A service state of mind*

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## Tray baiting tips



By Dr. Austin M. Frishman

**Use a dot-shaped sticker to record the date when the tray was installed.** Peel-and-stick dots of various sizes and colors are available at many office supply stores and can be used to discreetly mark and identify locations where control devices such as cockroach bait stations and sticky traps might be hidden from view. They also can help technicians find such locations quickly and easily during subsequent service.

**Place bait trays in corners.** This helps to intercept cockroaches that travel along structural edges and cues within the account.

**The back of the bait tray should be flush to the surface on which it rests.** Avoid creating a crack or crevice that might cause the cockroaches to use the bait placement as a harborage, rather than a feeding location. Cockroaches might foul bait placements with fecal matter, rendering the bait nonattractive or causing other cockroaches to not feed on bait.

**Place baits on horizontal and vertical surfaces.** Think three-dimensionally when controlling cockroaches. While it might be difficult to understand, the cockroach lives in a 3D world, and its abilities transcend our need for maintaining an upright position.

**Install baits in isolated zones per label directions.** For example, if a cabinet has four separate or partitioned shelf areas, you need four bait trays. Place bait trays so cockroaches will interact with them.

**Protect the tray in dusty or greasy areas.** Tuck the tray into folded cardboard and wrap a rubber band around it. Keep the bait snugly inside. Keep baits clean and palatable when placing them in protected areas. However, sometimes it's necessary to create such protected areas ourselves.

**As a security precaution, place a thin layer of petroleum jelly on the tray's top surface.** Occasionally, you'll encounter a situation in which your control products are missing, particularly in commercial accounts. Sometimes these items have been "borrowed" by someone who has a pest problem at home.

**Store unused product in a sealed bag or container to avoid contact with other pesticide odors.** Certain bait products can absorb or be rendered nonattractive by pesticide or other odors.

**Keep product out of the reach of pets, small children and mentally challenged adults.** Sometimes we dismiss certain directions as common sense. Nevertheless, be careful when using all pesticide products.

**Avoid placement or storage areas with excessive steam and humidity.** The bait will grow mold quickly. Baits need to remain palatable to work. Mind the environment in which you place baits to ensure they're not ruined by local conditions.

**Don't just discard remaining bait in the trash.** Any bait is best wrapped in its packaging wrapper before discarding.

**Cleaning up helps enhance baiting results.** For the bait to be significantly effective, it must be placed between the cockroach harborage and where they normally eat. When folks know why they're supposed to do something, you have a better chance of them doing what you recommend. As such, tell them why you're recommending increased sanitation efforts. When they get it, you'll see the difference.

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When working to resolve cockroach infestations, or any pest problem, be mindful of the following:

1. What is it?
2. Why is it here?
3. What must be done to eliminate the problem as soon as possible?
4. What needs to be done to prevent it from occurring again?

The first three questions are the easiest to answer and/or implement. The answer to the last question is the most difficult because there might be no practical way to prevent re-entry based on the neighborhood, the number of commodities brought into or delivered to the account daily, or the lack of cooperation realized. However, the need for regularly scheduled pest management service is critically important, and the timing of service frequency must be suitable to properly address pest pressure. High-pressure, multicomplex accounts will require daily service somewhere in the complex, whereas low-pressure accounts can go quarterly between visits.

One last tip: If an incident is noted before a service is due, waiting more than a day or two is



**German cockroaches of various ages on sticky traps indicates an established breeding population is present.**

unacceptable because cockroaches multiply too quickly. **PMP**

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*Dr. Frishman and Bello, longtime pest management industry veterans, have combined their expertise to jointly author **The Cockroach Combat Manual II**, publishing later this year. You can reach Dr. Frishman at 561-487-1585, and Bello at paul.bello@att.net or 770-500-0460.*

## Gel baiting tips

*By Dr. Austin M. Frishman*

**When baiting cracks, don't fill the crack.** Leave room for the cockroach to sit and feast. Cockroaches like to enter tiny cracks and crevices where they're protected.

**Avoid placement in areas warmer than 100°F.** Overly warm temperatures can cause gel baits to run, and shorten the useful life of the bait.

**Avoid placing bait in the open in dusty or windy areas.** The material will dry too quickly. Dried baits can harden and become less palatable or attractive to cockroaches.

**Suit your bait placement to the type of cockroach you intend to control.** Use many small placements for German cockroaches, for example, and larger placements for American cockroaches. While there might be more than one type of cockroach present at some account locations, avoid using a one-size-fits-all approach.

**Remove old, dried bait wherever possible.** Once baits become old, hardened and dried, they're not attractive to cockroaches. Such baits should be replaced as needed.

**Don't fill cockroach bait stations with gel.** Solid baits are for the bait stations. Think of the bait tray as a tank and the

gel placements as individual soldiers scattered around the protective area. Filling such stations with gel might prevent cockroaches from entering to feed.

**Don't apply liquid pesticide on top of gel baits.** You can only kill each cockroach once. But it's a not a good idea to contaminate your cockroach bait placements with insecticide applications because they might render the baits nonattractive.

**To apply in hard-to-reach areas, use a straight wire (from a hanger).** Cover the tip with a small piece of tissue or a paper towel secured with a rubber band. Smear with the bait. Paint the corners with the treated tip. Some bait applicator guns are available with extension application tips, but sometimes we need to be resourceful.

**Use a bait gun for precise application amounts.** Commercially available bait guns are fine application tools that offer adjustable dispensing, which helps apply baits in an optimal fashion and avoid waste.

**After placement, take a few seconds to see whether the cockroaches respond positively and eat the bait.** If not, you might have behavioral resistance and need to switch bait products. Manufacturers have conducted extensive studies on cockroach feeding preferences to provide the best cockroach bait products available. However, cockroaches are masters at the art of survival, so it's wise to watch for any abhorrent feeding.