

XCROSSFIRE®

CrossFire started a revolution in bed bug control. Now leading PMPs rely on the patented formula with multiple modes of action to save them time and money.

Confidently put an end to bed bug problems. Use CrossFire to give your customers the quick and long-lasting relief they've been looking for.



Complete Solutions. Better Results.



What do you
do when there's
no room for error?
**YOU
CROSSFIRE.®**

XCROSSFIRE®

www.MGK.com



PCT[®]

PEST CONTROL TECHNOLOGY

MARCH 2024 /// WWW.PCTONLINE.COM

Dr. Shannon Sked,
Western Fumigation,
a Rollins company

Natural Fit

Whether because it's good for the planet or good for their wallets (or both!), some PMPs are taking a more natural approach in their pest management and business practices. How can these ideas help you?

Turn to page 24 to find out.





 **BASF**

We create chemistry



The dynamic duo for absolute ant control, inside and out

Termidor® SC

Termiticide/Insecticide

Alpine® WSG

Water Soluble Granule Insecticide

Ants are the number one reason homeowners request pest control services, so give your customers results with two of the best ant control dilutables on the market that work in combination to target ant populations in all areas of the home. **Termidor® SC Termiticide/Insecticide**, the nation's leading ant-control solution for over 20 years, provides protection outside and around the exterior of a structure while **Alpine® WSG Water Soluble Granule Insecticide** brings a similar control method inside and off-structure. These non-repellent formulations use transfer effect properties to help eliminate ant colonies at the source, reduce callbacks and encourage customer retention.

For more information, visit pestcontrol.basf.us or contact your BASF representative.

Always read and follow label directions.

Termidor and Alpine are registered trademarks of BASF. © 2023 BASF Corporation. All rights reserved.

Natural Fit

Whether because it's good for the planet or good for their wallets (or both!), some PMPs are taking a more natural approach in their pest management and business practices.

COVER STORY **24** 



SPONSORED CONTENT



Problem Solvers

See page 77 to learn how various industry suppliers can help you solve some of your firm's biggest pain points.

38 Dark Matters

The April 8 total solar eclipse crossing the U.S. may jostle creature comforts and pest intentions.



42 Boring Beetles

Don't let the dull name fool you. Wood-boring beetles can wreak havoc on your customers' homes and more. Here are some tips on identification and control.

BED BUG CONTROL SUPPLEMENT

48 'Why Aren't These Bed Bugs Dead Bugs?'

A recent case study looked at whether a significant pyrethroid- and neonicotinoid-resistant bed bug infestation can be eliminated without utilizing traditional product applications.

56 Public Concern

Bed bugs can impact public health without being a vector for disease. Here's what you need to know about recent research and why staying informed can help make you a better PMP.

MOSQUITO CONTROL SUPPLEMENT

62 Strategic Bites

Good mosquito control requires effective strategies and knowledge of key species. Here is a bit of both to get you started.

70 Early Access

Interested in moving to a preventive versus reactive mosquito management approach? Read on for a general overview of Integrated Mosquito Management (IMM) and suggestions for early-season interventions that will help protect your customers all year long.

Departments & Columns

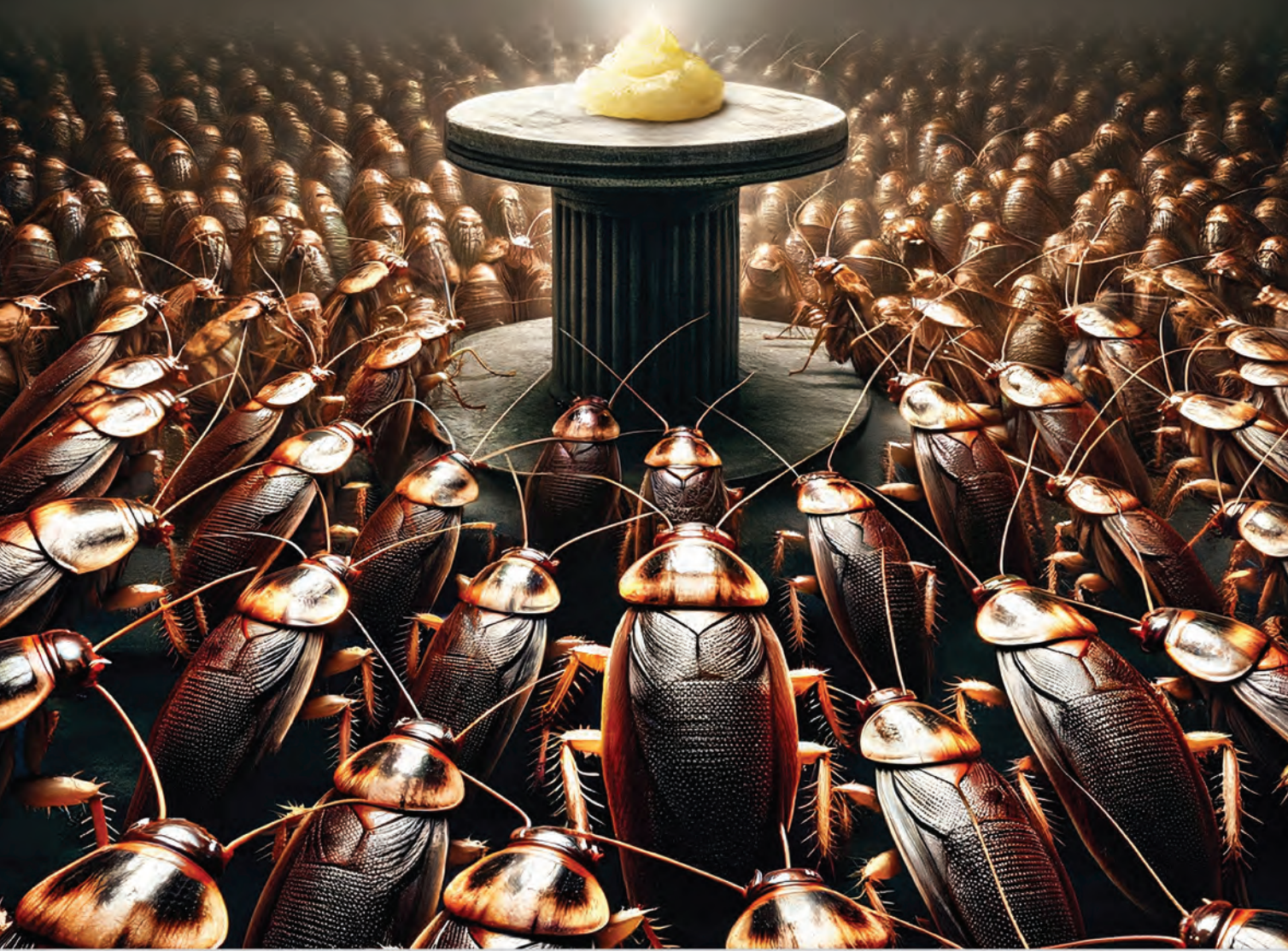
- 6 Online Contents
- 8 Viewpoint
- 10 News
- 11 M&A News
- 16 PCO News
- 20 Comings & Goings
- 76 IPM Insights
/// David Moore, B.C.E.
- 82 PPMA Pulse
/// Jim Fredericks
- 86 Products
- 88 Classifieds
- 89 Ad Index
- 90 Rearview

A story with this symbol indicates there's more information on www.pctonline.com.





Simply *irresistible.*



Magnetic Roach Bait® is made with food-grade ingredients and contains the carbohydrates, sugars, and attractants that draw roaches out of hiding, even in resource-competitive environments.



CONTACT YOUR NISUS REPRESENTATIVE FOR MORE INFORMATION



MAGNETIC
ROACH BAIT™

THE PULSE

PCT's The Pulse: Digging Deeper features weekly online polls on topics PCOs are talking about now.

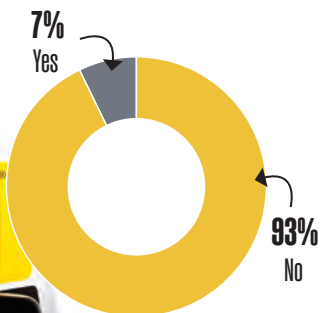
If you would like to have your voice heard, contact us www.pctonline.com/contact. Participate in our latest poll at www.pctonline.com/polls.



READER POLL RESULTS

PCT keeps a pulse on the industry with our timely Reader Poll questions. Here is a look at results from a recent poll.

Do you still advertise in phone books (e.g., Yellow Pages)?



Source: PCT Reader Poll, January 2024

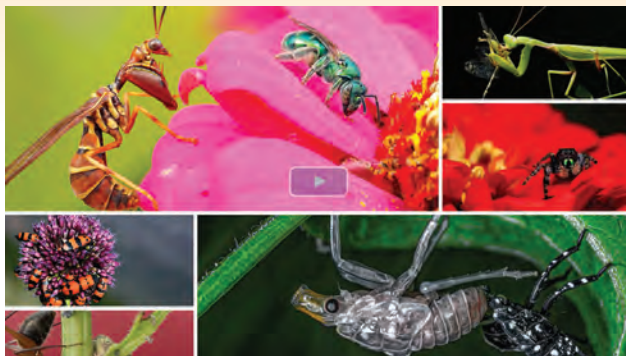


Webinars On Demand

Throughout the year, PCT hosts webinars covering a wide variety of business and technical topics. In January, industry consultant David Billingsly presented "Strategies for Supercharging Growth," sponsored by BILL. Billingsly reviewed multiple organic growth strategies PMPs can employ to supercharge growth, including improving operational efficiencies, expanding into new markets, upselling existing customers and adding new services. Watch this and other webinars on demand at bit.ly/3wt2D3a.

SLIDESHOW: PCT Photo Contest

PCT announced Tom Myers, owner of All-Rite Pest Control, Lexington, Ky., as the winner of our 22nd annual Best Pest Photo Contest. Myers won with a mantidfly photo he captured on his property, about 15 miles south of Lexington. PCT received numerous outstanding photos from industry professionals in the U.S. and globally. Visit bit.ly/3wxvuV1 to view a slideshow of some of this year's best entries.



NEW: Listen to PCT Articles

PCT recognizes that our audience consumes content in a variety of formats beyond print. It's for this reason we are excited to announce that our industry-leading website, www.pctonline.com, has been enhanced with the addition of text-to-speech technology. Look for the play arrow icon and "Listen to this article" text at the top of PCT news and feature articles. Simply click on this icon, sit back, listen and enjoy your favorite PCT content!

PMPs as Part of the One Health Initiative is Theme of Purdue Conference

BRAD HARRISON / FEBRUARY 2024

[Listen to article](#)

WEST LAFAYETTE, Ind. — For the last 88 years, the Purdue Pest Management Conference has brought together leading industry professionals to share the latest in progressive pest management. At this year's conference, held in West Lafayette, Ind., in January, speakers carried on this tradition while also discussing how pest management professionals (PMPs) play a role in One Health.



ONLINE EXTRA

PCT editors recently returned from the annual Purdue Pest Management conference, where we conducted video interviews with a number of speakers and attendees. Watch these and others recently captured at industry events at bit.ly/3x8CXZZ.

SCAN & DISCOVER

Point your phone camera at the QR codes below to learn more about the latest offerings for the pest management industry.



BROAD FLUSHING POWER



EXCITER™ 55 AEROSOL

Get broad spectrum control and fast-acting results with ExciteR™ 55 Aerosol. Featuring synergized pyrethrins to kill fleas, ants, ticks, and other labeled pests, ExciteR™ 55 Aerosol's flip-up nozzle provides flexibility for indoor broadcast surface spraying and crack and crevice applications for hard-to-reach areas.

SCAN THE QR CODE
TO LEARN MORE
ABOUT EXCITER™ 55



INDOOR & OUTDOOR USE



ANTACK™ LIQUID ANT BAIT

Liquid Ant Bait features the active ingredient Spinosad, a natural insecticide, in an attractive sweet liquid bait format which allows easy ingestion and better distribution throughout ant colonies.



SCAN THE QR CODE TO
LEARN MORE ABOUT
ANTACK™ LIQUID ANT BAIT

TREATS 2,000 SQ. FT.



PRECOR® 2000 PLUS PREMISE SPRAY

Featuring our pioneering insect regulator (IGR) (S)-methoprene, Precor® 2000 Plus Premise Spray is an ideal aerosol offering flea larvae control for up to seven months of protection. This broad-spectrum insecticide kills adult fleas and other listed insects. Precor® 2000 Plus Premise Spray by Zoëcon is a versatile flea control solution with a coverage area of up to 2,000 sq ft.

SCAN THE QR CODE TO
LEARN MORE ABOUT
PRECOR® 2000 PLUS
PREMISE SPRAY



7 MONTHS CONTROL



PRECOR® IGR CONCENTRATE

Featuring our pioneering insect regulator (IGR) (S)-methoprene, Precor® IGR Concentrate effectively breaks the flea's life cycle. This formulation prevents flea infestations and provides residual flea control. Precor® IGR Concentrate controls adult and pre-adult fleas (95% of flea populations) and is a great tank-mix partner.



SCAN THE QR CODE
TO LEARN MORE
ABOUT PRECOR®
IGR CONCENTRATE



LEARN MORE ABOUT THE FULL ZOËCON® PROFESSIONAL PRODUCT LINEUP AT ZOECON.COM.

Antack, ExciteR, Precor, Zoëcon and Zoëcon with design are trademarks of Wellmark International. ©2024 Wellmark International

**Publisher**Jodi Dorsch — jdorsch@gie.net**Senior News Editor**Brad Harbison — bharbison@gie.net**Managing Editor**Jason Brill — jbrill@gie.net**Senior Editor**Jacqueline Mitchell — jmitchell@gie.net**Digital Editor**Amanda Joerndt — ajoerndt@gie.net**National Sales Manager**Michael Kelly — mkelley@gie.net**Marketing Manager/
Western Region Account Manager**Mike Zaverl — mzaverl@gie.net**Market Coordinator**Amy Peppers — apeppers@gie.net**Contributing Technical Editors**

Dr. Bobby Corrigan, Chelle Hartzler

Columnists

Jim Fredericks, David Moore, B.C.E.

Creative DirectorJim Blayney — jblayney@gie.net**Senior Art Director**Andrea Vagas — avagas@gie.net**Advertising Production Coordinator**Lori Skala — lskala@gie.net**CORPORATE****Chairman**

Richard Foster

President and CEO

Chris Foster

PCT/QA Publisher Emeritus

Dan Moreland

Executive Vice President

James R. Keefe

Marketing Director

Irene Sweeney

Director of Data Acquisition

Christina Warner

Controller

Kelly Antal

Conferences and Events Director

Maria Miller

Production Manager

Michelle Wisniewski

CORPORATE/EDITORIAL/PRODUCTION OFFICE

5811 Canal Road
Valley View, OH 44125
800/456-0707
216/525-0515 (fax)
www.pctonline.com
www.gie.net



Beyond the 9-to-5

A couple of years ago, while attending an industry event, I ran into **Don McCarthy**, who is now mostly retired but was the longtime owner of Braemer Pest Control, Halifax, Nova Scotia, Canada. I asked him, "How is retirement treating you?" and he responded he was keeping busy with his band. Wait. What? Don McCarthy plays in a band. Who knew?

It turns out McCarthy has been playing and writing music since the 1960s, and retirement has given him a chance to rekindle his passion for music and to spend more time with son and bandmate Nathan. McCarthy handles most of his band's vocals while his son plays bass, and the two jam together at least once per week.

I thought this would make for a fun article, so I assigned it to our 2023 summer intern Cole Oswald. The timing was great as McCarthy and his band were just getting ready to release "Into the Morning Mist," a collection of 11 songs that he and his friends created throughout the years. (I encourage everyone to check out this album at bit.ly/3wjmsDv.)

PCT shared McCarthy's story in August 2023's Rearview (read "Rockin' Out in Retirement!" at bit.ly/49hDJ8v). We've highlighted other industry professionals in Rearview, which is the department that appears on the last inside editorial page in each issue of PCT and includes news and notes from the industry and the insect world. PMPs we've recently gotten to know a little better outside of the office include:

Ray Jerauld. In February's Rearview (check it out here bit.ly/3SOcoUj), we shared the story of Jerauld, director of recruiting and retention at Anti-Pesto Bug Killers, Largo, Fla. One of Jerauld's hobbies that has helped him stay focused and disciplined is long-distance running. During the last 13 years, Jerauld has completed nine marathons and races that were 54 miles, 46 miles and 50 kilometers long. He also ran a 100-kilometer trail race in a tropical storm. When I asked Jerauld why he became a runner, he said he traded the highs of cigarettes and alcohol for the "runner's high."

John Moore. How does Moore, IPM director for Fumigation Service & Supply (FSS), Westfield, Ind., spend his free time? He and wife Sheila are antique dealers who set up booths at local antique malls. This hobby has greatly enhanced another of his pursuits — collecting antique rodent traps. Moore has accumulated more than 500 rat and mouse traps that date back to the mid-19th century. It's something PCT reported on in January's Rearview (see bit.ly/42Otru6).

Don Nilan. In this month's Rearview (page 90), we shared an outside interest of Nilan, who uses his problem-solving abilities at work as owner/operator of Bayside Service, Shelton, Wash., and in his pursuit to help colleagues. Nilan and friend George Burger, who has a tool and die shop in Montana, created flashlight mounts for sprayer wands and bait applicators. Nilan explained that he and Burger created the mounts to address the challenge of applying liquid pesticides using a tank and sprayer in dark areas.

I'm glad I ran into McCarthy at that industry event several years ago. It served as a reminder that so many of PCT's readers have talents beyond business acumen, insect identification, problem-solving, etc. If you are one of those PMPs, or if you know of others who have talents and interests outside of the office, email me at bharbison@gie.net

I'm excited about the April 8 total solar eclipse. In the Cleveland area, we will experience two-and-a-half hours of partial darkness and about four minutes of complete darkness ... in the middle of the day! I struggle putting into words why the eclipse intrigues me so much, but I'm curious to observe how an otherwise normal day gets disrupted by a rare, natural phenomenon. And what will happen to insects and vertebrate pests? PCT explored this topic in "Dark Matters" (page 38). Leading entomologists and NASA experts shared research and experiences on this topic and what PMPs can expect to observe. If you're a PMP who will be in the field during the April 8 eclipse, let us know what interesting pest behaviors you encounter. Email Digital Editor Amanda Joerndt at ajoerndt@gie.net. **PCT**

The author is senior news editor of PCT.

A Proven Perimeter Pest Treatment Program To Reduce Callbacks... As Easy as 1-2-3!



1

EcoVia EC emulsifiable concentrate

Apply repellent spray up to **3 ft above the grade** around the foundation. Also apply around doors, windows, eaves and other pest entry points.



- Quick Knockdown & Up To 90 Days Control of Crawling Insects

2

InTice¹⁰ perimeter bait

Apply InTice 10 Perimeter Bait in a **2 to 3 ft band** outside of the liquid spray. Also treat other areas attractive to insects such as woodpiles and remote landscapes.



- Perfect for Quarterly Service Programs

3

EcoVia WD wetttable dust

For extended residual protection, apply as a dust or wetttable powder. Spray the underside of eaves, spray or dust in cracks around windows and door frames, into weep holes and under edges of siding.



- No Pyrethroid or Neonic Use Restrictions

**FOR MORE INFORMATION, SCAN THE QR CODE
AND WATCH THE BRIEF VIDEO!**



Liberty Pest Control Opens New Headquarters Building

BROOKLYN, N.Y. — Liberty Pest Control, Brooklyn, N.Y., kicked off 2024 by moving into a new 11,000-square-foot office and warehouse.

The new facility, located at 850 Third Ave., in the Sunset Park neighborhood of Brooklyn, is an important milestone for the fast-growing pest control firm, which recently surpassed 5,000 accounts (servicing New York and New Jersey). Previously, Liberty operated from multiple buildings in Brooklyn.

"We're bringing everything under one roof," said Joe Temperino, co-owner of Liberty Pest Control. "There is a portion of it for our chemicals, and we also have sales, accounts receivables and the service department all under one roof. We also have plans to add a learning center."

The new office (located in a building coincidentally named Liberty Brooklyn) was a long-time goal of founder and co-owner Rich Cappa. Like many NYC pest control firms, most of Liberty's routes are serviced by foot. Each technician has a dropbox where they will pick up chemicals and supplies (an exception being the company's rodent-proofing division). Cappa wanted a place where all technicians could gather for training, team-building and other functions.

One example of how the new facility benefits Liberty is housing its rodent-proofing division. Temperino said Liberty has become a proponent of rodent-proofing, which is critical for keeping mice and rodents out of aging NYC structures. "Working in New York City ... you definitely need to step up your game in this industry or you're going to be left out," he said. "Customers appreciate that we're a one-stop shop. We're not just coming to exterminate — we're coming to protect your entire account." — *Brad Harbison*



Joe Temperino (left) and Rich Cappa in front of a mural inside the new Liberty Pest Control building.

PCOC President Mary Hernandez added, "PCOC believes that our industry's focus on existing personal protection equipment (PPE) requirements prevents exposure and provides adequate safety of employed persons. This is the sensible action that DPR should take instead of mandating the installation of eye wash stations."

PCOC said that it is committed to co-operating with governmental agencies and the regulated industry to enhance safety and the quality of their operations for the betterment of all Californians. The association said it appreciates the opportunity to provide input on the proposed pesticide decontamination sites regulation.

Veseris Acquires Integrated Pest Supplies Limited

AUSTIN, Texas, and VANCOUVER, B.C. —

Veseris announced the acquisition of Integrated Pest Supplies Limited, a provider of pest control supplies and equipment in Vancouver, British Columbia. Veseris said this transaction sets the stage for its continued growth in the Canadian pest control market.

"We are thrilled to welcome the customers and team members of Integrated Pest Supplies to the Veseris family. After a careful and thorough evaluation, we are convinced that this transaction will be a 'win-win' across the board for our dedicated employees, loyal customers and supplier partners," said Veseris CEO Ken Bradley. "Integrated Pest Supplies is already well established as an industry leader in pest management in this key growing market, and we are confident that Veseris has the right resources and vision to position the business for long-term sustainable growth."

David Pallen, one of two co-owners, who will continue on to help transition the business to Veseris, said, "When looking for a home for our business, we were looking for a company that shares the same values we do: an independent mindset and is passionate about how customers, suppliers and employees are treated. We found that in Veseris. As an industry leader, we knew they would give our employees opportunities for growth and the ability to offer our customers an expanded range of products, training and solutions."

PCOC Applauds DPR's Notice Regarding Pesticide Decontamination Sites

SACRAMENTO, Calif. — The Pest Control Operators of California (PCOC) said it applauds the California Department of Pesticides (DPR) decision not to proceed with proposed regulations published in the California Regulatory Notice Register on March 17, 2023, concerning pesticide decontamination sites. On behalf of the professional pest management industry, PCOC raised concerns in the association's comments that sections of the proposed

changes were impracticable to implement and placed pest control companies and their employees in untenable positions.

PCOC CEO Michael E. Wilson said, "The leadership of PCOC appreciates DPR's willingness to work with PCOC representatives that sought to help the agency better understand the daily complexities that professional pest control industry representatives and technicians encounter. Through continued dialogue, we believe that we can strike a better balance of costs and burdens to secure more practical solutions to ensure the safety of our employees."



NPMA Announces 2024 Workforce Summit

FAIRFAX, Va. — The National Pest Management Association (NPMA) Workforce Summit, taking place May 9-10 in Atlanta, Ga., will focus on driving the conversation on how to create a skilled, diverse and engaged workforce that supports the evolving needs of the pest management industry.

This event will provide a platform for thought-provoking discussions, networking opportunities and the exchange of innova-

tive ideas that will shape the future of the pest control industry, NPMA said.

Attendees can connect with professionals, industry executives and like-minded individuals who are equally passionate about nurturing talent. Attendees also will gain exclusive behind-the-scenes access and experience the inner workings of two pest management companies and understand what sets them apart.

The Workforce Summit program immediately follows the 2024 Women's Forum program. Visit www.npmapestworld.org to learn more about both of these events.

M&A News

Please send press releases about your firm to bharrison@gle.net.

Rockit Pest further expanded its footprint in the Tampa area with the acquisition of **Green-Tech Termite and Pest Control**.

Frank Nabozny founded Green-Tech Termite and Pest Control in 1980 with the mission of providing customers with high-quality and eco-friendly pest control service at competitive prices, he said.



Left to right: Danielle Erlandson, Nicki Chandler and Frank Nabozny, Green-Tech; and Ryan Bradbury and Jason Guy, Rockit Pest.

"After 40 years in business, the decision to retire and sell GreenTech was a bittersweet one. I wanted to partner with a company that would maintain our legacy by upholding our commitment to our customers and taking care of the GreenTech team," said Nabozny.

Clark Pest Control, a Rollins company based in Lodi, Calif., announced in January the acquisition of **Oxley Pest Control**, a pest management provider based in Bakersfield, Calif.



Clark Pest Control will bring Oxley Pest Control's 11 full-time employees on board at its Bakersfield service center and will add Oxley's customers to the Bakersfield branch's customer base. Oxley Pest Control was established in

1994 by David and Terry Oxley to provide services to residential and commercial customers in Bakersfield, Kern County and surrounding areas.

Kemp Anderson Consulting represented Oxley Pest Control in this transaction.

Massey Services announced the acquisition of **Insight Pest Solutions** of Myrtle Beach, S.C. Entering the South Carolina market nearly 10 years ago, Massey has added additional service centers during the last several years. With this acquisition, Massey now has seven service centers throughout the state of South Carolina.

Greenix Pest Control, Orem, Utah, announced that it had acquired **Bamboo Pest Control**, Ft. Wayne, Ind., expanding its presence in the Midwest.

With the addition of Bamboo Pest Control, Greenix Pest Control now operates in 18 states, servicing more than 180,000 households throughout the Mid-Atlantic, Midwest, Northeast and its home state of Utah, where the company is headquartered.

Bob Nilsen, chairman and CEO of Greenix, said, "We couldn't be more excited to welcome the Bamboo team to the Greenix Family. Our ongoing commitment to providing customers with a world-class pest control service remains true."



Left to right: Greenix's Andrew Barrows; Bamboo Pest Control co-owners Daniel Hinkson and Sam Richman; and Greenix's Brad Floyd and Bari Cruze.

DING DONG THE ITCH IS DEAD.



CONTROL FLEAS CONFIDENTLY BY PREVENTING FUTURE POPULATIONS WITH OUR IGR IN PRECOR® PRODUCTS.



A LEGACY OF CONTROL.

Go to ZOECON.com for the full story



Precor and Zoecon with design are registered trademarks of Wellmark International. ©2024 Wellmark International. *Data on file.

NEW!

CAD₃ET™

ALL-WEATHER BLOX®

**TAKE CONTROL OF
THE POPULATION AND
ELIMINATE RODENT
INFESTATIONS**

**AVAILABLE NOW:
D₃ BLOX®**

**OPTIMIZED
FOR MAXIMUM
PALATABILITY**



PRODUCT FEATURES:

- Active Ingredient: Cholecalciferol
- Kills anticoagulant-resistant Norway rats, roof rats & house mice
- Proven weatherability: both mold and moisture-resistant
- Can be used in any environment, including indoors and outdoors
- MADE IN THE U.S.A.





ALL-WEATHER
BLOX[®]

NEW



CADET³
ALL-WEATHER BLOX[®]

NET WT:
18 lbs (8.16 kg)
NET CONTENTS: 8.7 oz (249 g) Blocks

This Product May Only be Used Inside and Within 100 Feet of Man-made Structures. Dead rodents begin appearing after 3 days.
KILLS RATS, HOUSE MICE & MEADOW VOLES*
Mold Resistant • Moisture Resistant
KEEP OUT OF REACH OF CHILDREN
CAUTION

See back panels for First Aid, additional Precautionary Statements, and Directions for Use.

ACTIVE INGREDIENT:	0.010%
Chlorfenvinphos (CAS # 67-67-02)	0.010%
OTHER INGREDIENTS	99.990%
TOTAL	100.000%

*Not registered for use against the following species in California: Cotton rat, Eastern house mouse, Gambel's quail, House mouse, Meadow vole, White-breasted nuthatch, Southern plains woodrat, Spiny-tailed woodrat, and Spiny-tailed woodrat.

THE WORLD LEADER IN RODENT CONTROL TECHNOLOGY[®]
www.belllabs.com



Hal Coleman Presented with GPCA Hall of Fame Award

ATHENS, Ga. — Hal Coleman, president of Coleman Services, was honored for his years of service by being named the Georgia Pest Control Association's (GPCA)

most recent Hall of Fame recipient at the association's annual Winter Conference, Jan. 10, in Athens, Ga.

GPCA President Greg Holley said, "Hal has been an intricate part of the pest control business in Georgia and GPCA for more than 50 years. It was an honor to be



Hal Coleman accepts the GPCA Hall of Fame Award.

part of inducting him into the GPCA Hall of Fame."

Coleman received a degree in agriculture from the University of Georgia. He was hired by the Georgia Department of Agriculture to be a field inspector six months prior to his graduation, a position that he held for 10 years. Coleman left to work for Arrow Exterminators for six years, and then opened his own business, North Fulton Exterminating, which he ran for 18 years. He sold the business and opened his own pest control coaching business. Through his business, Coleman instructs customer service classes while being a frequent speaker at industry events. Further, he instructs customer service classes at the UGA Griffin campus.

"Coleman's knowledge of the industry is amazing," said Dennis Judy, who nominated Coleman. "He has graciously given of his time and talents to support and serve the industry that he loves. The GPCA deserves a Hall of Fame member of this caliber and Hal deserves to be recognized for his many years of outstanding service."

In Memoriam: Phil McCloud

GALENA, ILL. — Phil McCloud, longtime leader of McCloud Services, passed away on Dec. 30 at 74.

McCloud joined the company full-time as a sales representative in 1972, eventually taking over as president in 1985, when his dad, Tom McCloud, went into semi-retirement.



Phil McCloud

A charismatic leader with a knack for selling commercial business, he carried on the McCloud legacy, growing the business from \$1 million to \$23 million. Working alongside brother Chris McCloud (16

COURTESY OF GPCA

Thinking of Selling?

Hire an expert.



Damon Martin,
Owner,
Mathis Exterminating

"Going into the single biggest transaction of your life without representation is like going to court without a lawyer. Kemp's team of experienced industry-specific professionals who truly understands the process from valuation to close, is the best peace of mind you can buy."

Kemp and Theresa took a complex transaction and made it easy. I truly believe I hired the best team in the industry"

"Kemp Anderson Consulting was an amazing resource during the sale of our company. They helped us maximize our valuation far beyond our expectations. They were professional, responsive, and worked very hard to navigate a very complex and difficult transaction. We were very blessed to not only achieve great results, but to make new lifelong friends along the way!"



Todd Lamar,
Owner and Partner,
Pest & Termite Consultants of North Carolina

Call for a **free** consultation today!

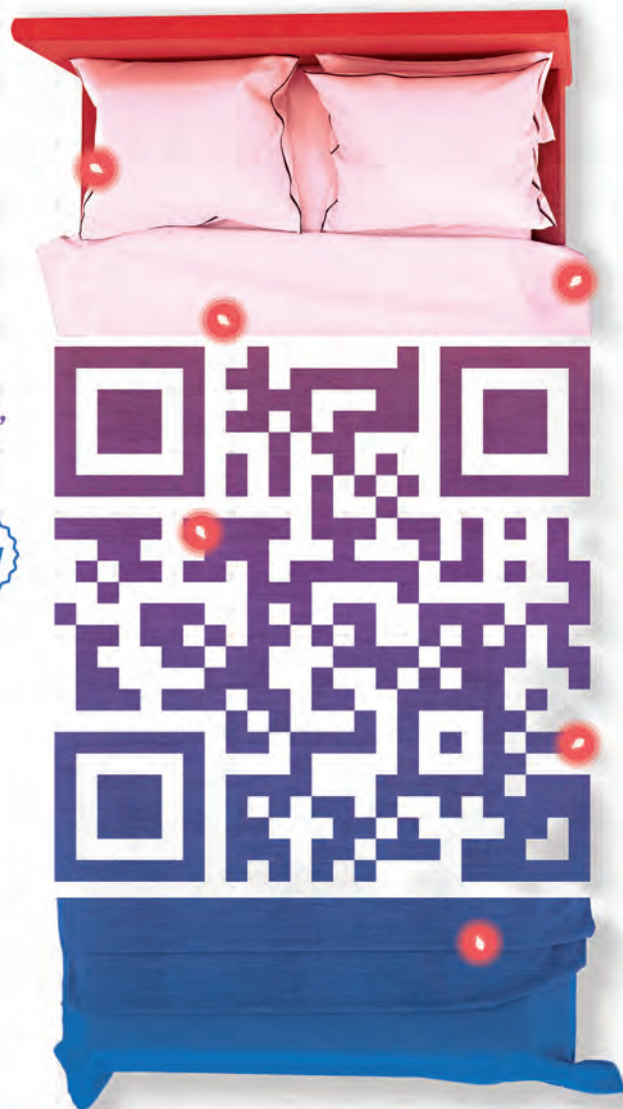


(407) 466-5859

KempAnderson.com

Kemp@KempAnderson.com





10
MINS

Launching in 2024,
this new solution
starts eliminating
bed bugs in
10 minutes.³



NEW

#1

The #1 product for
treating bed bug
infestations.¹



90%

Detects even
low-level bed bug
infestations in five
minutes with over
90% accuracy.²



Confidence. Control. Coverage.

Scan to see how our suite of bed bug solutions
can provide you with all three.



¹Based on the percent of respondents who mention Temprid FX. Source: <https://nmpapestworld.org/default/assets/File/newsroom/magazine/2015/Nov-Dec 2015.pdf>.

²Ko, Alexander & Choe, Dong-Hwan. Development of a lateral flow test for bed bug detection. Scientific Reports 10:13376 (2020).

³Protocol OE18USAXKD.

ALWAYS READ AND FOLLOW LABEL INSTRUCTIONS. Environmental Science U.S. LLC, 5000 CentreGreen Way, Suite 400, Cary, NC 27513. For additional product information, call toll-free 1-800-331-2867. www.envu.com. Not all products are registered in all states. Envu, the Envu logo, Temprid® and TruDetx™ are trademarks owned by Environmental Science U.S. LLC or one of its affiliates.

©2024 Environmental Science U.S. LLC. ES-0324-BBS-111-A-R1

years his junior), the two polar-opposite personalities were able to blend their talents and lead the company to next level growth and development.

Chris succeeded Phil as president of McCloud Services in 2007, and Phil took on the role of "Director of Magic." Phil

sold McCloud Services to Chris in 2014, but he retained McCloud Aquatics, the Chicago-based aquatic weed and algae management company that the McCloud family established in 1962. His sons are fifth-generation service providers: T.J. is president of McCloud Aquatics, while Josh

The power to bait better in the palm of your hand



When it comes to baiting better, our customers are giving the **SureKill® Gel Bait Pro Applicator** a thumbs up. The unique thumb-driven design helps reduce hand strain from repeated use, while the 5-setting adjustable dial ensures optimal gel output and minimal bait wastage. This durable yet lightweight applicator is your newest partner in achieving consistent, comfortable, and efficient applications.

SureKill®
One Brand. Endless Protection.

See how baiting better just got easier!



neogen.com • 800.621.8829 (USA/Canada) • 859.254.1221

Neogen Corporation, 620 Leshar Place, Lansing, MI 48912 USA.

© Neogen Corporation 2024. All rights reserved. Neogen and SureKill are registered trademarks of Neogen Corporation.

PCO News



Please send press releases about your firm to bharbison@gje.net.



Veronica Showalter (Arrow), Joe Goodell (Dave's Pest Control), Ben Hottel (Orkin), Mark DiNunzio (MarketPoint Solutions), Jason Pelham (Arrow) and Greg Holley (Zone Pest Solutions/GPCA President).

Atlanta-based **Arrow Exterminators** announced that Jason Pelham, vice president of marketing and Brooke Freeman, corporate fleet manager, have successfully completed the Georgia Pest Control Association's (GPCA) Leadership Program. This achievement was celebrated at the GPCA Winter Conference in Athens, Ga., on Jan. 10.

The GPCA Leadership Program is a three-part development program that provides participants with a fresh take on leadership skills and strategies that can be put to practical use in companies, departments or even the participants' personal lives, according to GPCA.

Pelham also received the James Allgood Jr. Leadership Award, a recognition bestowed by the GPCA to a standout leader within the program.

Sherrill Pest Control announced the opening of a new office in Shelbyville, Tenn. With this expansion, Sherrill Pest Control will provide pest control services to residential and commercial customers in Shelbyville, Tenn., and surrounding areas. The new office will allow Sherrill Pest Control to better serve the needs of their customers by providing a centralized location for consultations, inspections and treatments, the company said.

Alamo Termite & Pest Control announced the opening of a new office in McKinney, Texas.

This is the company's fourth location in Texas, including its Fort Worth, Dallas and Carrollton offices.

Josh West, owner of Alamo Termite & Pest Control, said, "We felt it was important to expand our service areas in order to protect more people's homes. Our mission is to 'make every home a safe haven, so people love where they live.' By expanding, we can do more of this."



TRAP & MONITOR

*for rodents and insects
at the same time.*



Economical
and reusable



Rodents do not
come in contact
with the glue board



Rolled edges and
easy-access panel



Private label
options available

Compatible with Catchmaster®
#72TC or #72TCUS glueboard

#611 DUAL ACTION
TWIN CATCH

WANT TO IMPROVE AIR QUALITY IN A CRAWL SPACE?

The supply air inducer is attached to supply side of the ductwork and will introduce a small amount of conditioned air into the crawlspace to help regulate the RH. It includes a backflow damper to keep bad air from entering the system.

Visit our website or call us at 888-331-9991 to learn more about how a supply air inducer can help improve crawl space air quality.



SANTA FE



SANTA FE OASIS105 DEHUMIDIFIER

The Oasis105, is perfect for a wide range of applications, including crawl spaces, basements, whole-home, and attics. It features onboard digital controls, variable speed fan, dew point cut out, and a low maintenance positive pressure condensate drain.



SANTA FE COMPACT70 DEHUMIDIFIER

With a horizontal configuration and a flow-through design, this system removes excess moisture from low-clearance crawlspaces and tight basement areas to a small home theater. Removes up to 70 pints of water a day.

WE HAVE WHAT YOU NEED.

MEGA DRY



MEGA DRY WI-FI CS75 DEHUMIDIFIER

The Mega Dry CS75 Wi-Fi Connected Dehumidifier features digital controls with Wi-Fi capability so you can adjust the unit from your smart phone without having to enter the crawlspace. The easy-to-use unit removes up to 75 pints of water daily. It's permanently drained so there are no buckets to empty. The CS75 is also up to 40% more efficient than a stand-alone dehumidifier, and that saves you money right away.

APRILAIRE



APRILAIRE E070 DEHUMIDIFIER

This dehumidifier is ideal for dehumidifying your sealed crawlspace or basement, removing up to 9 gallons (70 pints) of water per day. The dehumidifier has a simple-to-use interactive display, making set-up and use a breeze.

APRILAIRE E100 DEHUMIDIFIER

The Aprilaire E100D Dehumidifier is ideal for dehumidifying your sealed crawlspace or basement removing up to 100 pints (12.5 gallons) of water per day. For your convenience, the control panel can be mounted on the top or front of the unit so it is easy to access in any location.

is owner of Missoula, Mont.-based Hold-Fast Enviro Pest Solutions.

Phil is survived by wife Leslie, sons Josh and T.J. McCloud and numerous other family members. A celebration of Phil's life will be held in June. — *Brad Harbison*

Del Rossi Receives NEPMA Bartlett W. Eldredge Award

PORTLAND, Maine — At the New England Pest Management Association's annual dinner in December, the association presented the 2023 Bartlett W. Eldredge Award to Chris Del Rossi, founder and president of pest control company Food and Drug and The Bug (FDB).

The award is named in honor of the organization's founder and first president, and is intended to recognize a PMP who has distinguished themselves, demonstrated service to the association, the pest management industry, local community and who has earned overall respect from peers.

Comings & Goings

If your company has added new personnel, send a photo and press release to bharbison@gie.net.



McCarthy



Brandow-Kettler Aranda



Prewitt



Gilmer



Suits

Braman Termite & Pest Elimination announced the promotion of **John McCarthy** from account manager to sales director. He brings nearly a quarter of a century of experience in the pest control industry to this role.

Nisus Corporation announced that **Sanya Brandow-Kettler** joined the company as an independent sales representative for the Hawaiian Islands and the Pacific.

Turner Pest Control promoted **Suzanne Aranda** to vice president of sales and business operations and **Leanne Prewitt** to vice president of operations, Southwest.

Pest Daily announced that **David Gilmer** joined the company as vice president of client

integration. He will be responsible for developing educational content and regularly interacting with Pest Daily members.

David Laque, a former D2D sales professional, launched Wayne Termite & Pest Control, which services Passaic County, N.J.

Versacor Managed Pest Solutions announced that **James Suits** has retired after a 42-year career in the pest control industry. Suits joined Versacor in 2012. His pest control journey included time spent as a service technician and owning his own pest control company.

In2Care recently announced **Ryan Precht** as West region sales manager and **Kristopher Hamby** as East region sales manager.

ALL PHOTOS COURTESY OF COMPANIES



For the love of bees.

When applied correctly, **Niban® Granular Bait** can help eliminate targeted pest insects like ants and cockroaches without harming beneficial pollinators like bees and butterflies.

CONTACT YOUR NISUS REPRESENTATIVE FOR MORE INFORMATION



Oldham

chemicals company, inc

CELEBRATING
58 YEARS
IN BUSINESS



www.OldhamChem.com

1 800-888-5502



NEPMA Eldredge Award honoree Chris Del Rossi (left) and NEPMA President DJ Flynn.

Del Rossi founded FDB in 2013 after having worked for JP Pest Services for 22 years. The company has found its niche solely providing pest and exclusion services to industrial food and medicine industry clients.

Tim Francis, field operations manager, FDB, worked with Del Rossi at JP Pest Services and became the first service professional Del Rossi hired.

"Chris is just a great guy to work with. He's very flexible, always encouraging and he wants to develop new ideas on how to

approach situations," Francis said. "He supports innovative strategies like using cameras and all types of different equipment. It's been a blessing to work with him."

Del Rossi has made many contributions to the New England Pest Management Association, including helping fellow companies train their staff in servicing food manufacturing facilities and pharmaceutical plants. — *Brad Harbison*

Bobby Corrigan Inducted into IPMA Hall of Fame

WEST LAFAYETTE, Ind. — Dr. Bobby Corrigan was inducted into the Indiana Pest Management Association Hall of Fame during the 88th annual Purdue Pest Management Conference, in January.

Corrigan was presented with a plaque recognizing his induction by Dr. Gary Bennett, retired coordinator of Purdue's urban and industrial pest management



Gary Bennett (left) recognizes Bobby Corrigan as an IPMA Hall of Famer.

program. Prior to starting his consulting career, Corrigan worked alongside Bennett as a teacher and researcher at Purdue.

A native of Brooklyn, N.Y., Corrigan is a graduate of Purdue, where he earned both a master's and Ph.D. in rodent pest management.

As owner of RMC Pest Management Consulting, Corrigan provides training and consulting services to the pest management and food industries. He continues to give back to the pest control industry in Indiana as a presenter at the Purdue Pest Management Conference's and as a member of the conference's planning committee. — *Brad Harbison PCT*

NEPMA: DAVE MUELLER

Keep Birds and Squirrels Out of Venting Systems



The Perp!

A warm vent is inviting for pesky critters.

Attempts to make a home inside is not *just* a nuisance. It can be a serious fire hazard.

Get Serious Pest Protection

The DEFENDER Access+

The Solution!



Model DFRP80W

Pests are no match for the zinc and powder-coated steel Defender.

Easy-open vertical bars minimize lint buildup and make it easy to clean.

Installation is a breeze and provides serious protection.

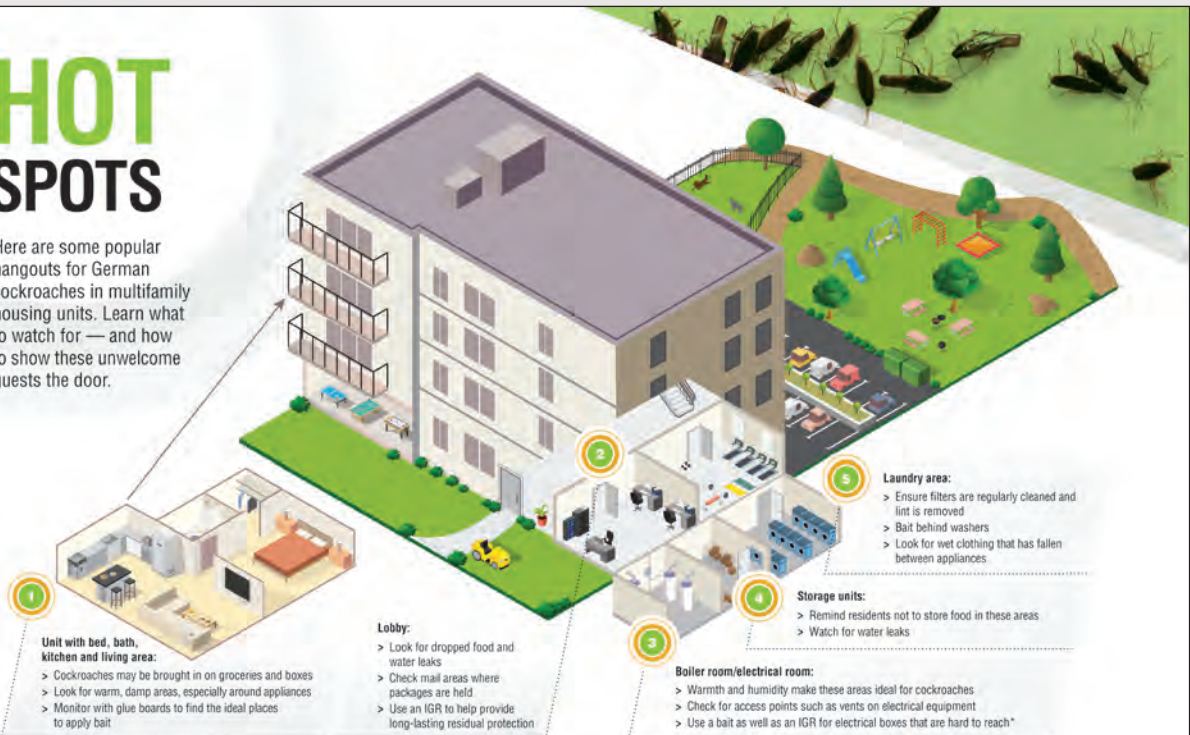


800-803-2537
DefenderHood.com

HOT SPOTS

HOT SPOTS

Here are some popular hangouts for German cockroaches in multifamily housing units. Learn what to watch for — and how to show these unwelcome guests the door.



Scan to access a library of training videos.



LET'S SOLVE FOR THIS We're here and ready to help with whatever questions you have or pest challenges you face.

MGK.com



*Always product use the pest control direction equipment before use. Always, read and follow the EPA-approved product label.

Your **Free** Copy of a Valuable New Educational Resource from MGK

Detach and Display in Your Office or Training Area

MGK.com/Training

By Donna DeFranco
Photos By Addison Geary

Natural Fit

Whether because it's good for the planet or good for their wallets (or both!), some PMPs are taking a more natural approach in their pest management and business practices.

Dr. Shannon Sked, director at Western Fumigation, a Rollins company in Sharon Hill, Pa., still thinks about a question one of his professors at Rutgers University posed during Sked's first conservation ecology class in 1998. The professor wrote two things on the board: "paper plates" and "dishwashing." He asked the students which was the more environmentally sound choice. After 15 weeks of study, the class shared their conclusion: It depends.

"It depends on your perspective and your



“Yes, some of the pesticides we use have the potential to be detrimental to the environment; however, the good they do in managing pests often far outweighs any negative impacts associated with their use.”

Dr. Shannon Sked, 
Western Fumigation,
a Rollins company



focus,” Sked explained. If your focus is freshwater conservation, then paper plates are the more ecologically friendly choice. You may be using more natural resources in manufacturing, distributing and ultimately disposing of those plates, but you’re saving water by not needing to wash them.

On the other hand, if your focus is land conservation, then dishwashing is the better choice, because you’re not using the land for tree manufacturing, which is required to produce the raw materials needed for those paper plates.

“We face similar complexity with pest control services,” Sked said. “Yes, some of the pesticides we use have the potential to be detrimental to the environment; however, the good they do in managing pests often far outweighs any negative impacts associated with their use.” Additionally, pesticides are highly regulated by the Environmental Protection Agency and state agencies to mitigate those risks.

Sked shared the following example.

“Stored product pest management, including rodent management, for post-harvest agricultural crops (grains, corn,

Sked wears his pride for what he does as a PMP.



What's in a Name?

When Nick Petti bought his company in the mid-'90s, it was called AI Exterminating Services. He didn't feel like that name was a great fit in light of the goals he had set for his business.

“I knew from the eight previous years I had spent in pest management that the way I wanted to grow was by making careful product and application choices that would benefit customers' health and property in a way that was always for the better,” said Petti. “My goal is always to be consistent with the message of Genesis 1:28, that God gave us the authority and the duty to care for his creations wisely and responsibly. We stand accountable for how we treat the Earth and its creatures.”

In 2000, after acquiring a company called Enviro-Tech Termite & Pest Control, Petti changed the company name to Enviro-Tech Pest Services and “made the full shift to an environmental approach.”

Today, the Charles Town, W.Va., company offers customers transparency into the company's commitment to protecting the Earth. To be clear, Enviro-Tech doesn't use organic materials exclusively and isn't opposed to making product applications in circumstances where pest pressure demands it. Petti's team takes an IPM approach that begins with making mechanical alterations — exclusion, vacuuming, harborage elimination, etc. — and then determining

whether they can gain the appropriate level of control with organic products, or if they need to move to conventional pesticides.

“We've had great success using different essential oils, and we always try to stay ahead of new formulations coming out on the market,” Petti said. “But we recognize that many of the synthetics available to work with today are also environmentally sound choices. It's not like back in the '80s when everything was oil-based. You mostly had emulsifiable concentrates. Today, we have a variety of water emulsions and micro-encapsulated products that are less detrimental to the land and water.”

The company's environmental approach to pest management, signaled by the Enviro-Tech name, attracts customers, according to Petti. “When customers choose us over other pest management companies, it's often because of our environmental stance,” he said. “They want their pest issues resolved, but in a way that won't be harmful to their children, pets and the overall environment.”

Petti said that also extends to recruiting and retaining employees who have an affinity for the environment.

“When employees come to work for us, sometimes it's just because they believe in the cause and want to work in pest management, and sometimes it's because they want to work in pest management and be good stewards of the environment,” he said. “Either way, they fully embrace what we're doing once they join the team. They know that we're helping to make customers' lives better, and they're proud to be part of an industry that cares about the future.”



Enviro-Tech Pest Services co-owners Jean and Nick Petti



Explore The **FORSHAW** Difference

PEOPLE | PARTNERS | PERFORMANCE

96%

On-Time Delivery

Count on us to reliably and consistently meet your deadlines, allowing you to focus on what matters most to your business.

99%

Order Accuracy

Meaning you can trust us to get your order right the first time, every time, saving you time and hassle.

FORSHAW stands as one of the last family owned and operated distribution companies in the industry, with unparalleled expertise, cultivated product selection, and exceptional customer service that make us the go-to partner for companies seeking reliable, effective solutions for their pest and wildlife distribution needs.

What Sets Us Apart?

01

ForeSight

ForeSight, our advanced inventory management software, offers a suite of tools to streamline your inventory management processes, including industry leading real-time tracking.



02

Family Owned

As a family-owned and operated business for over 60 years, **FORSHAW** has always prioritized building strong partnerships with our partners, suppliers and employees.



03

Mission, Vision, & Values

At **FORSHAW**, we are more than just a distributor, we are a trusted partner committed to providing exceptional products and services with integrity and professionalism.



Ready To Learn More?

Contact your FORSHAW representative TODAY!

Sales@Forshaw.com | 800.438.4534

www.FORSHAW.com

cocoa beans, coffee beans, etc.) is critical. Here's why: According to the Department of Agriculture (USDA), we lose 20-40 percent of global crop production to pests annually. So, if we were to eliminate the pests, we could feed the world with 20-40 percent less land," said Sked. "When you cut back on that land use, you also reduce the amount of fertilizer and other chemicals that need to be applied to the land. So, the use of pesticides — particularly if you're using the most environmentally friendly options without compromising effectiveness — enables us to feed the world using less arable land for agriculture, which conserves land and improves the overall environmental quality of the spaces around where people live."

While this example simplifies what is decidedly a more complex assessment that takes a range of variables into account, it



Enviro-Tech Pest Services' technician Greg Irving with one of the company's Toyota Prius hybrid fleet cars.

clearly illustrates Sked's point that the pest management industry does humankind a great service by protecting not only people, property and public health, but also the planet. "We tend to take a defensive posture when talking about the products we use in our industry instead of talking

about the benefits those tools enable us to contribute to the overall health of the environment," said Sked.

Sked was quick to share another example that may resonate with service technicians as a reminder that what they do every day makes a positive difference.

"If left untreated, wood-destroying insects (especially termites) can cause so much damage to homes — and entire neighborhoods — that reconstruction work is necessary," he

said. "Think about how quickly Formosan termites can destroy a home's structure or imagine if we couldn't fumigate homes for drywood termites in California. How much additional lumber would we need? How many acres would be required for harvesting that lumber? How much fuel

COURTESY OF NICK PETTI

PCO SUPPLY INC.

Serving pest control companies since 1970

(931) 425-6200

www.pcosupplyinc.com

Easy To Install CRAWL SPACE SOLUTIONS



THE PCO SUPPLY Access Door

OUR ACCESS DOORS FAR EXCEED ANY OTHER DOOR ON THE MARKET TODAY

- Made from heavy-duty 1/4-inch plastic
- May be trimmed to fit openings from 20" X 26" to 30" X 48" (18"x24" access)
- The door is easily modified to install a vent.
- Available in two colors: black or white
- Patent ID #374,486



THE PCO SUPPLY Adjustable Floor Support

- Made from heavy duty concrete
- Easily adjusted to required heights
- Available in sizes: 6", 9", 12", 17", and 21"
- Specifically designed to stand securely and to remain stationary after installation



THE PCO SUPPLY Spikes

Five inch vapo spikes one piece sheet metal head that will not separate from shank. This spike does an excellent job of holding down the vapor barrier in the crawl space.



“Hiring people who are better than you is your **number one** job as CEO.”

We need to get in the idea of going out and finding great people.
The most successful companies are run by CEOs
who are not threatened. They're not concerned by having people
that are far more capable of them in their organization.

They actually relish this. People who are motivated,
the A-players... they don't need incentive structures,
they need challenges. These are the people that come
to you with solutions instead of problems.”

-PAUL GIANNAMORE

REMARKS MADE AT THE PEST DAILY ENERGY CONFERENCE
FEBRUARY 1, 2024

IS YOUR COMPANY
ON THIS LIST?



POTOMAC
MERGERS & ACQUISITIONS

would be burned transporting it? As in the paper plate example, when we protect and preserve homes, we lessen the need to tap into our forests. When you consider the relatively small amount of sulfuryl fluoride or other fumigants we need to use to eliminate wood-destroying insect infestations, it's easy to see that pest management makes a much smaller impact on the environment than if we had not done the treatment."

To sum it up, Sked said, "If it weren't for pest control, we'd have a difficult time feeding the world. We'd be destroying more land, and we'd have more harmful inputs being put into the land, air and water, because we'd need more land to build houses and grow crops. It's just that simple."

Sked, who considers himself an environmentalist who is also a pest management professional (PMP), isn't alone in understanding the positive impact pest

control can have on the natural world. Many PMPs (especially younger generations) across the industry feel the same, whether it's protecting land, crops, public health or even other animals that are susceptible to the impact of pests.

"I don't even know how someone could measure the amount of good the pest control industry does, from not only the standpoint of property damage but also public health and safety," said Nick Petti, president, Enviro-Tech Pest Services, Charles Town, W.Va. "Think about the disease vectors we deal with: Without pest management, the death toll and the number of sicknesses in our country alone would be astronomical. We should all be proud of the work we do as stewards of the Earth. Anybody who would say we're doing things that are against the environment doesn't understand what we're doing."

Sked makes sure that message is shared

throughout his team. Anytime a technician simply says, "I'm fumigating," when asked what's on their plate for the day, Sked might provide an outfit change: a T-shirt that declares, "I prevent catastrophic invasive species introductions."

LOW IMPACT, HIGH EFFICACY. Integrated Pest Management techniques have become the norm across the industry, with companies carefully evaluating what measures they can take before applying pesticides to knock down infestations, gain control and prevent future infestations. When pesticides are necessary, PMPs have a broader range of choices than ever before.

"Most of the products used in the industry are well-designed; when you use them according to the label, they are responsible and safe choices," said Petti. "The key is knowing which products and application methods are the most responsible while

ACCESS PRODUCTS

FOR THE PEST MANAGEMENT PROFESSIONAL / FROM DIVERSIFIED PLASTICS



E-Z ACCESS CRAWLSPACE

- Attractive
- Keyed Lock
- Weatherstripped
- Paintable
- Easy Installation
- Potential Add-On Profits



E-Z ACCESS II

- Easy to Install
- Hardware Provided
- Removable Center Panel
- Covers Bathroom/Kitchen Sinks/Toilets/Laundry Areas/Wet Bars, etc.



COVER-UP ACCESS PANEL

- Economic Bath Trap Access
- Attractive
- Convenient



MINI PORT ACCESS COVER

- Easy Installation
- Very Cost Effective
- Great For Cabinets/Tight Places



Call your local distributor of professional pest control products or:
(918) 695-6742 • www.divsales.com

EXPERTS IN DELIVERING EDUCATIONAL OPPORTUNITIES

Providing comprehensive and tailored trainings to empower you to grow your business.



46 Convenient Locations



CEU Training



Experienced Sales Team



Extensive Educational Programs

PRODUCT SPOTLIGHT



Trapper 24/7 IQ
4/Case
1510764

\$20 CASE INSTANT OFF



Alacer Ant
20 Tubes/Case
1514684

\$146.20



Alacer Roach
20 Tubes/Case
1514685

\$135.00



✉ info@target-specialty.com
🌐 target-specialty.com
📘 [TargetSpecialty](https://www.facebook.com/TargetSpecialty)

🐦 [TargetSpecProd](https://twitter.com/TargetSpecProd)
🌐 [Target Specialty Products](https://www.linkedin.com/company/Target-Specialty-Products)
📺 [targetspecialtyproducts](https://www.youtube.com/channel/UCv3v3v3v3v3v3v3v3v3v3v3)



still being effective in helping you achieve your goal for any particular account.

"I've worked for companies that would have service technicians apply a granular insecticide around the house on every service, and others that were big on aerosol use," Petti added. "While each of these has its place in pest management, they're not always needed — or maybe you can achieve the same level of effectiveness using a smaller amount. When you consider that it can take quite some time for certain products to break down in the environment, you always need to ask yourself if there is a more environmentally sound approach to getting the job done."

Sometimes organic products fit that bill. As these products continue to grow in variety and form, they are becoming increasingly integral to pest management companies' toolboxes. Debug Pest Control in Smithfield, R.I., uses both plant-based

and more conventional pesticides, according to President Bill Horgan. In making the right product choice, he said, it's important to weigh the pros and cons of each option.

"I remember sitting in a seminar," Horgan recalled, "and the speaker said, 'If you're using green products — organic or plant-based products — but they don't do a good job, will you need to go on more visits? Does driving back to the account more times offset the goal of minimizing your carbon footprint?' It's important to discuss the options with the client. We often find that those who prefer plant-based products are OK with the idea that the efficacy may not be quite as good. They work with us to minimize conducive conditions, so between the organic product application and the education we provide, we can reduce the pest pressure to a point where they're comfortable."

FOCUS ON EDUCATION. Making good calls on which treatment approaches offer the best balance of efficacy and environmental sustainability starts at the top, with business or technical leaders staying up-to-date on the latest technologies and determining whether they're a good fit for the company and its clientele. That information, along with appropriate training, needs to be shared with service technicians, who can then help customers understand why certain treatment measures make sense from an environmental standpoint and what needs to be done to make those treatments as effective as possible.

"We empower our technicians by providing technical training here at the office on a regular schedule in addition to ongoing on-the-job training," said Horgan. "We also plug our team into various industry events so they can gain knowledge and hear perspectives from other technical



STREAMLINE YOUR PROGRAM WITH CONNECTED RODENT CONTROL

Maximize efficiency with the VLINK Connected Bait Box

- Instant alerts for 24/7 hands-off monitoring
- Real-time, hands-off monitoring with instant alerts
- Sensors accurately monitor bait consumption
- Ideal for non-toxic baiting protocols



vlink.victorpest.com

ALSO AVAILABLE
Connected Tunnels
& Snap Traps

How Debug Is *Creating a Buzz* in Rhode Island

Bill Horgan had been tuned in to the need for saving pollinators for some time before he and his Debug Pest Control team planted their own pollinator garden in 2019. It wasn't unusual for Horgan to collaborate with a beekeeper when faced with a bee-related issue where the hive could be preserved, as he did in a notable save at the University of Rhode Island in 2017.

So when Horgan and his team learned of an opportunity to adopt the center island of a traffic roundabout in the small village of Chepachet, R.I., they envisioned planting a pollinator garden there and seized the moment. "The town administration and Rhode Island Department of Transportation said if we would provide the insurance, we could take it over," he said. "It was costly, but aligned perfectly with our company values — in particular, our Debug Cares initiative, which challenges our team to give back to the community."

The team has been tending the garden ever since. "It's become a passion project. We send them out on company time to mulch and weed the garden on a monthly basis. It's really a labor of love," Horgan said. "The town has given us great feedback, and we're happy to be able to build community awareness of the need to support pollinators. We have our little Debug sign there, too, but that's not why we do it."

Debug's director of marketing, Jeremy Spurr, who was instrumental in the company's first island adoption, built a second pollinator garden in his own hometown, East Providence. Spurr and his wife maintain that one and were "kind enough" to put a Debug sign in the adopted spot, Horgan said, adding,



Debug Pest Control's Trish Horgan (foreground), Tim Horgan (background right) and Adam Miner tend to the Chepachet pollinator garden.

"We've talked about doing even more, but if you do any gardening, you know what weeds are like; these gardens require a lot of upkeep!"

COURTESY OF DEBUG PEST CONTROL

QUALITY MATTERS. EVERY TIME.

COXREELS®

PREFERRED CHOICE BY THE PEST CONTROL PROS!

- ✓ Increase Work Safety & Efficiency
- ✓ Motorized and Hand Crank Reel Options Available

DURABLE. RELIABLE. HOSE, CORD, & CABLE PRO GRADE REELS

VIEW OUR COMPLETE LINE OF REELS ONLINE

MADE IN THE USA SINCE 1923

TOLL FREE | 800.269.7335

WWW.COXREELS.COM

FOLLOW US:    

Pro-Pest® SILVERFISH TRAP

Irresistible Silverfish Trap captures common Silverfish and Grey/Long-Tailed Silverfish

NEW PRODUCT

Unique attractant is highly appealing to Silverfish... 3X more attractive over other Silverfish traps

Attracts 6 - 8 weeks

Individually packaged attractant stays fresh & potent until ready for use

Wings over the trap windows keep out dust & helps to disperse attractant.

Designed for tight spaces: under pallets, equipment, furniture, behind cabinets, desks, beds, in closets, etc.

JFO Code: 047-SIL-100
2 traps per sheet
Full trap size: 9"L x 3-3/4"W x 3/4"H
Single trap size: 4-1/2"L x 3-3/4"W x 3/4"H

Jfoakes Contact us for a free sample
800-844-9296 | www.jfoakes.com | General: sales@jfoakes.com

experts and entomologists in the field. They need to be able to explain to customers that we're using the most environmentally friendly practices so those customers feel good about what we're doing when we come into their homes and businesses."

Customer education also includes helping them see the importance of their own involvement in pest management solutions. For residential customers, this may include cutting back shrubs, keeping gutters clear and eliminating standing

water; for commercial kitchens, it may involve sanitation and installing the right door sweeps. "When customers invest their own efforts in the outcome, you can achieve greater outcomes," Horgan said. "You get them to make that investment by educating them."

Jean-loui Navarro, master beekeeper and president, Mega Bee Rescues & Pest Control, Miami, shared another example of the need for customer education. Navarro's company is committed to relocating — rather than exterminating — bees when customers call for service. His team members are registered beekeepers who often need to explain their eco-friendly approach.

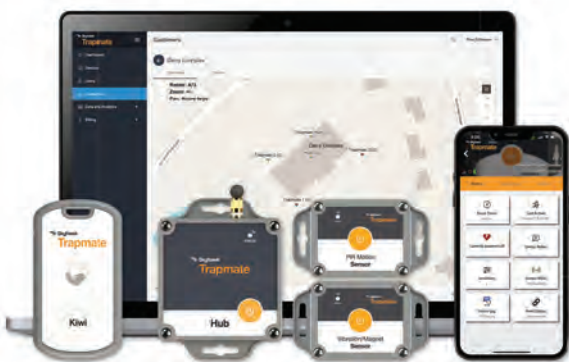
"When we let homeowners know that we can relocate the bees to resolve their issue — that we provide this solution because bees, as pollinators, are so beneficial to the agriculture industry and the food supply — most of them like the idea of that approach," he said. "They feel better about the service because they have this opportunity to do something positive for the environment."

Navarro's fellow PMPs also appreciate having the opportunity to help save the bees. He works alongside PMPs from other pest management companies interested in offering bee relocation services and advises his peers when they have questions about handling bees. "I sometimes get calls from PCOs in other states who want to find out more about bee removals and rescues," said Navarro, who helped pivot the pest control company his dad founded to be more environmentally conscious. "I'm always happy to offer guidance or help. It's what I'm here for!"

He's also there for consumers and PMPs who look to the internet for information. Navarro and his team regularly create educational videos covering a gamut of bee-related topics — the critical role of bees as pollinators, how to read a hive, removing and rebuilding hives, identifying and protecting queen bees, etc. — that they post to their YouTube channel. For beekeepers, Navarro shares his expertise with Bee College, a program of the Honey Bee

Friends don't let friends check empty traps.

Get the most advanced remote monitoring systems available for pest and wildlife control.



With Skyhawk Trapmate, you can stop checking empty traps.

No matter what you're trapping, or which traps you use, you can use Trapmate to easily add monitoring to the traps you already own.

Trapmate – the only complete solution for all of your remote monitoring needs.

www.trapmate.ai
info@trapmate.ai | (800) 760-3966

Skyhawk
Trapmate

**RAT & MOUSE
SNAP TRAPS**



**FAST
HARD**



▶ **ECONOMICAL & REUSABLE**

▶ **MULTIPLE BAITING OPTIONS**

CATCHMASTERPRO.COM | INFO@CATCHMASTERPRO.COM | 1.800.458.7454

Research and Extension Laboratory of University of Florida, Institute of Food and Agricultural Sciences.

“I cover a variety of topics with attendees — who are aspiring and established beekeepers — such as the importance of knowing how to approach a structural bee removal, for example, and dos and don’ts related to construction issues that often arise, such as opening walls or roofs,” he said.

REDUCE, REUSE, RECYCLE. What happens back at the office can make a big difference, too. Each year, PCT asks PMPs through its State of the Naturals Market survey what they’re doing to *go green* in addition to making greener product and treatment options available to their customers. Here are the top responses:

- **Going paperless:** Email, online and text communications offer great alternatives to traditional hard copy correspondence. Does it take a while to get your customers on board? You bet. But most companies find it’s worth it for not only the environmental benefits but also the convenience. “We’re firm with customers about moving to a paperless environment,” said

Mega Bee Rescues & Pest Control regularly creates educational videos covering a gamut of bee-related topics.



COURTESY OF MEGA BEE RESCUES & PEST CONTROL

EXECUTIVE

PEST CONTROL PRODUCTS

The Leader in Termite Treatment Repair Plugs

Since 1998

execpcp.com

877.892.8112



- Flush top design, can use with or without concrete finishing
- 5 sealing rings
- Sizes: 1/4, 3/8, 1/2, 9/16, 5/8
- 250 or 1,000 count

New 1/4" size



BAIT SYRINGE REPLACEMENT PLUNGERS AND TIPS

Now Available in bulk quantities

- perfect fit for pre-filled bait syringes

Available in retail ready packaging

- 12 plungers and 12 tips per bag

Inexpensive solution for lost, expensive bait guns



Horgan. “We’ve put a significant fee on paper invoicing — so much so that we’ve frustrated some customers — but 99 percent of us have email now, so we’re really leaning into emailing to save paper.”

- **Using routing software and more fuel-efficient vehicles:** Fuel consumption and vehicle emissions are huge concerns for environmentally focused companies. That’s why many are investing in routing software and updating their fleets with electric or hybrid vehicles. For comparison, the Department of Energy cites average annual carbon dioxide emissions of all-electric vehicles at 2,700 pounds; plug-in hybrids at 4,800 pounds; other hybrids at 6,900 pounds; and gasoline at 12,600 pounds (based on 2022 data).
- **Recycling:** If you haven’t instituted a formal recycling program for your office yet, it’s relatively easy to get started.

Make sure all team members understand your goals and expectations, and provide clearly marked bins for cans, cardboard and recyclable plastics. Follow EPA recommendations for pesticide containers and other recyclable but potentially hazardous materials.

- **Reducing energy and water consumption:** Conscientious energy habits are as important at work as they are at home. Putting policies in place can help you reach your sustainability goals. For example, make sure everyone who uses a computer is switching to sleep mode when they are about to step away from their work for any length of time, and that they shut their computers down at the end of each workday. You also might consider having a commercial energy audit conducted on your facility(ies). An energy auditor can assess your energy usage,

identify areas where energy is being wasted, and recommend strategies for saving both energy and money.

BUILD YOUR IMAGE. You don’t have to use all-organic products to tout your business as environmentally friendly. By virtue of already taking an IPM approach, applying pesticides only as needed and always according to the label, PMPs can be stewards of the environment.

Supporting environmental causes through volunteerism and financial support goes a long way in establishing your company as a protector of the planet, too. For example, Enviro-Tech Pest Services shows its commitment to keeping local waterways clean through its work with the Chesapeake Bay Foundation. Debug Pest Control adopted a high-visibility local

/// continued on page 84



Sustainable, long-term protection against a host of wood-destroying organisms in **one simple application.**

CONTACT YOUR NISUS REPRESENTATIVE FOR MORE INFORMATION

BORA-CARE
TERMITE, INSECTICIDE, AND FUNGICIDE CONCENTRATE

For Prevention and Control of:

- Subterranean Termites
- Formosan Termites
- Drywood Termites
- Carpenter Ants
- Listed Wood Destroying Beetles
- Fungi (Rot)
- Algae

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

SEE BACKSTICK FOR ADDITIONAL PRECAUTIONARY STATEMENTS AND COMPLETE DIRECTIONS FOR USE.

NISUS
ACTIVE INGREDIENT: Disodium Octachloro Sebacate (CAS No. 37280-65-4) 49%
OTHER INGREDIENTS 51%
TOTAL 100%

EPH 360-963-8462 • EPA EST. 64452-28-1
EPA PATENT NOS. 5,645,828, 7,187,802
©2024 Nisus Corporation
MADE IN THE U.S.A.



Dark Matters

The April 8 total solar eclipse crossing the U.S. may jostle creature comforts and pest intentions.

By Kristen Hampshire

Who turned out the lights? Day fast-forwards to dusk to near-darkness during a total solar eclipse like the one parts of the U.S. will experience on April 8. It will be visible along a narrow trek stretching from Texas through the Midwest, with a center of totality in Lorain County, Ohio, then straight on to Maine.

North America's last total solar eclipse was 2017, and it triggered a wave of awe since the previous celestial phenomenon occurred in 1979. Now, just seven years after the relatively recent day-into-night wonder, a swath of the country will jolt into tourist destination mode as observers flock with American Astronomical Society-approved glasses for safe viewing.

But how will the creatures PMPs manage handle this entire situation?

Whether it's birds, bees, skunks, cockroaches, cicadas, spiders, ants or rats, will the eclipse mess with feeding habits, predatory risk or incite a state of total confusion? What about customers? Will someone realize they've got a major cockroach problem on their hands when the normally nocturnal buggers emerge in the middle of the day, figuring they're in a safe zone for noshing on grime?

Not necessarily.

But to be sure, there is a "feeling in the air" during a total solar eclipse that churns up the natural world.

The temperature drops by 10-15 degrees Fahrenheit. Winds blow with a noticeable degree of swiftness. For roughly two and a half hours, what seems like an astronomical dimmer switch gradually turns down the lights to an especially dark dusk, when totality persists for nearly four minutes before the cycle reverses and we arrive back at broad daylight.

"It will be enough for animals to wonder if their alarm clocks were wrong," said Jeff Woytach, president, Space Systems Consulting, LaGrange, Ohio, a lifelong "space cadet," who also has worked as an aerospace engineer at NASA Glenn Research Center in Cleveland since 1983.

Woytach has contributed to spacecraft launched on the space shuttle, was an ascent trajectory lead for two National Oceanic and Atmospheric Administration (NOAA) weather satellite launches and performs extensive community outreach. He has personally experienced one other total solar eclipse and two partial solar eclipses, which is a pretty big deal if you consider the rarity and complexity of ideal weather (limited cloud cover), location, time and travel.

What do we know about how structural pests react to pulling the rug out from under their circadian rhythm? Most organisms, including you, associate with a day-

night cycle, but patterns vary depending on the species. Some fire during the day. Others prefer the nightlife. An internal clock directs everyday activities of life like when it's time to eat dinner or buzz around.

"Some insects use the sun to navigate, so they know where they are in relation to food like how a bee uses the sun to find a hive," explained Philip Koehler, professor emeritus at University of Florida, Gainesville.

He brings up an insect you might not think about — the dung beetle.

"They are found worldwide, and an adult beetle will form a 'dung ball' and roll it to a place where they can bury it, and it's a food source for their larvae," he explained.

They like to follow the sun. That'll be a problem when the sun goes down amid the process.

"Insects that call at night are affected by sundown, so crickets will start chirping and other signaling insects might start calling," Koehler said.

For other insects during the solar eclipse, it's *crickets*. They'll clam up.

"During the last total eclipse in Georgia, some researchers got out there and tried to collect some observational data, and a lot of insects just sort of stopped," said Chelle Hartzer, urban pest control consultant, 360 Pest Consulting. "It was like, 'We know something weird is going on, but we don't know what.'"

The thing is, most pests festering indoors didn't notice. "There might be some pressure changes, but if they are nocturnal and indoors, they're still asleep," Hartzer said.

TURN ON THE DARK. Along those lines, yellowjackets recruit the sun to navigate from subterranean nests to trees, where there's a buffet, and then back to their nests. Night-flying moths await darkness to do their thing. Temperature drops deter some insects like mosquitoes from biting, until dampness sets in, but according to observations from a total eclipse in 1923, "dozens came from their hiding places in the grass and started to bite."

Some bees took a confusing detour in that 1923 eclipse. "Observations cite that a bumblebee fled on to the coat sleeve of a man sitting on a veranda and it became lifeless during the totality of the eclipse," Koehler said.

Creature behavior during a total eclipse depends on whether they are active night or day. Diurnal organisms are early risers that get busy while the sun's out. The nocturnal set is opposite. "I doubt nocturnal rodents would be affected much by a temporary dark spell," said Bobby Jenkins, president, ABC Home & Commercial Services, Austin, Texas. "There are usually bio-clocks in place in addition to light intensity impacts."

**If you're a
PMP out in the field
during the April 8 eclipse, let
us know what kind of interesting
pest behaviors you encountered.
Reach out on social media or
email Digital Editor
Amanda Joerndt
ajoerndt@gie.net.**

Burrowing rodents probably won't notice the dark of day either.

"Wildlife pest species within burrows or a structural nest of some sort like wall voids, attics, earthen burrows and crawlspaces where it is dark during the day anyway might not even realize there is an eclipse going on outside," Jenkins said.

But if a creature's bio-clock alarms at dusk to seek nourishment, "They could leave the darkness of their harborage and encounter light. Now, they are exposed to all of their enemies while trying to find food," he said.

There could be some in-between situations, like with tree squirrels. "Maybe they scurry back to their nests in temporary dis-

orientation, but after the eclipse passes, the reappearing light triggers them to 'get back to work' collecting food," Jenkins said.

OBSERVATIONS, PLEASE. NASA and scientist researchers are encouraging everyone to get out and observe during this year's eclipse. There's an emerging field called soundscape ecology that studies the acoustic properties of ecosystems to gain a better understanding of animal behavior. Eclipses are a unicorn kind of experience.

The NASA Eclipse Soundscapes Project invites any participant to collect data and record observations via its tech tools and reporting resources to build on knowledge gained from a 92-year-old project that aimed for similar goals.

"Solar eclipses are almost like a sped-up version of the dusk-night-dawn-day cycle, so they provide a unique opportunity for us to study how things like light and temperature impact soundscapes and life on Earth," said Kelsey Perrett, communications coordinator for Eclipse Soundscapes at NASA.

The project continues an anecdotal archive of goodies collected during the 1932 total solar eclipse, including 498 observations of bird, mammal and insect behaviors. "There were several observations of crickets chirping loudly around totality," Perrett said.

Some farm animals returned to nightly resting places. Bats and owls "became more alert and were feeding," she said. "Most fascinatingly, these changes give us a multisensory way to study something that people often consider a visual phenomenon."

"Anyone who works closely with insects or wildlife is in a great position to participate, not only because they are likely to be familiar with these locations, but because they can closely monitor and report on changes in normal vocalizations and behaviors."

For more information on how to participate in NASA's Eclipse Soundscapes project, visit eclipsesoundscapes.org. **PCT**

The author is a regular contributor to PCT.

Crawlspace DEPOT^{LLC}

NEW PRODUCT!

THE FUTURE OF CRAWL SPACE TECHNOLOGY!

The package includes the key components of the ATMOX ACE 2.0, the moisture control system that gives homeowners the information they need at their fingertips and allows them to control dehumidification, ventilation and circulation in their crawl space. This package is designed for crawl spaces up to 2000 square feet and sold at a special price!

Package includes:

- 1 of ATMOX ACE 2.0 Control Set with Sensors
- 1 of 24VAC Relay Kit for Dehumidifiers
- 2 of ATMOX Low Voltage Installation Wire (14/2)
- 1 of ATMOX Exhaust Fan with Louver - 225 CFM
- 1 of ATMOX Intake Fan with Louver - 225 CFM
- 2 of ATMOX Internal Fan - 145 CFM - Joist Mount



ATMOX CRAWL SPACE ESSENTIALS PACKAGE

Special pricing available!

DEHUMIDIFIERS



APRILAIRE



SANTA FE



MEGA DRY

Visit www.CrawlspaceDepot.com to see all the details about our dehumidifiers.

TO RECEIVE THE CONTRACTOR PRICING, SET UP AN ACCOUNT AT
WWW.CRAWLSPACEDEPOT.COM THEN CALL **1-888-331-9991**



WE HAVE WHAT YOU NEED.

NEW! WOVEN-COATED LINERS NOW AVAILABLE!

The right vapor barriers!

High-quality polyethylene vapor barriers are essential if you want to ensure that your crawlspace is properly sealed against moisture. Crawlspace Depot carries the ***widest selection of vapor barriers in the business***, along with fasteners, tape and adhesives.

Visit our website or call us at
888-331-9991 to find out more.

12 mil Liner



WOVEN-COATED POLY LINERS

STRING-REINFORCED POLY LINERS



6 MIL

12'x100' ROLL
24'x100' ROLL

8 MIL

12'x100' ROLL
20'x100' ROLL

12 MIL

12'x100' ROLL
24'x100' ROLL



16 MIL

12'x100' ROLL

20 MIL

12'x100' ROLL

Visit www.CrawlspaceDepot.com to view our full selection of poly liners.

BORING

By Daniel Dye



Don't let the dull name fool you. Wood-boring beetles can wreak havoc on your customers' homes and more. Here are some tips on identification and control.

BEETLES

The anobiid powderpost beetle is also known as the deathwatch beetle.

Two of the most widely distributed wood-boring beetles in the United States are the anobiid powderpost beetle and the old house borer. They infest seasoned, processed wood meant for construction. The larvae of both species feed by tunneling through softwood used for building homes and other structures. This tunneling could range from cosmetic to structural damage if left unchecked. The cost of damage caused by wood-boring beetles in structures is estimated to be in the millions of dollars, second only to damage from termites.

In this story, we also will discuss three other wood-boring beetles that are not

commonly found to cause structural damage in homes and other structures.

ANOBIID POWDERPOST BEETLE. The anobiid powderpost beetle also is known as the deathwatch beetle. The head is covered by the pronotum from the top view. The last three segments of antennae are usually lengthened and broadened. It looks very similar to the drugstore beetle. They produce round exit holes that are 1/16- to 1/8-inch wide, with gritty powder and bun-shaped fecal pellets mixed in with the powder. Seasoned softwood and the sapwood of seasoned hardwoods are preferred. A moisture content in the

wood of 13 percent or greater is more ideal for larvae mortality.

When determining whether there is an active infestation, there are a few things to consider. The age of the structure is one. Most infestations are found in homes older than 10 years of age. If activity is occurring, there will be evidence of powdery frass along with bun-shaped pellets streaming from the exit holes and accumulating below the infested area. Infestations are particularly common in crawlspaces and on the exterior of log cabins.

OLD HOUSE BORER. The old house borer, a cerambycid longhorn beetle, is black

to brownish-black and slightly flattened. The antennae are long with 11 segments. There are two shiny bumps on the dorsum of the prothorax. The wings are often completely black and may have gray patches forming distinct bands. The adults may reach the length of about 1 inch.

The larvae are cream-colored and round in appearance. The body tapers off from the head to the posterior end. The mandibles are dark brown. Fully grown, the larvae may reach a length of 1-1/4 inches.

The larvae produce granular frass with small (1/24-inch long) barrel-shaped pellets along with irregular shaped granular particles in the mix. They normally follow the grain of the wood, tightly packing frass behind them.

The common name "old house borer" is a bit misleading, since they occur mainly in homes and structures less than 10 years old. A survey was performed of homeowners

and pest management professionals in Virginia some years ago. The result of the survey found most frequent infestations were in homes three to five years old. The larval stage will spend two to six years in its tunnels consuming wood before pupating, depending on several factors.

These factors include:

- Wood moisture
- Nutrient content
- Relative humidity
- Air temperature

If environmental conditions are not optimal, they could take 10 years or more to mature. Reinfestation is not uncommon, so homes as old as 20 years could have an active infestation.

There are several ways to detect if the infestation is current. Chewing sounds in the wood is one way. When the larvae are between three to five years of age, they are at

their largest size of about 1 inch in length. When the conditions are favorable for activity (spring and summer) and the humidity in the wood is ideal (around 10 percent), the larvae are the most active. This is when they are most likely to be heard.

The age of the wood is another factor. As already mentioned, the old house borer larvae prefer wood less than 10 years of age. Although wood older than 10 years could still have an infestation, their growth and development slows down considerably.

A ragged oval-shaped hole approximately 1/4- to 3/8-inch wide is an excellent indication that an adult beetle has emerged. However, it is hard to tell whether the emergence hole is new or old, with new being less than six months old. If the frass around the hole is pale-colored, it could be an indication of a recently cut exit hole. Having said that, it's still very difficult to tell if an emergence hole is old or new.

PROTECT HOMES

with TAP® Pest Control Insulation



TAP® Pest Control Insulation is an EPA-registered pesticide that kills 21 common household pests, has a superior thermal and acoustical properties, and has a higher R-value per inch than traditional insulations!*

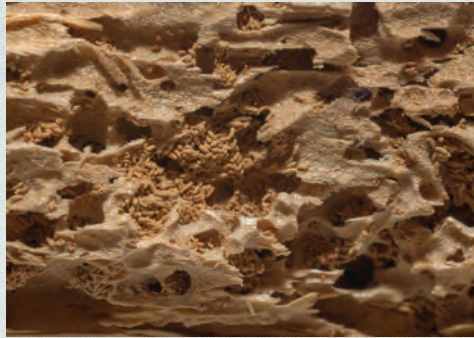


Scan to get started
with TAP today



*Homeowners may qualify for the federal tax credits and save up to 30% of the job cost. Contact us today and learn about Turnkey Program and how we can help you build a successful TAP® program for your business. Pest Control Insulation offers complimentary training and support programs for all TAP® providers.





Top left: Anobiid powderpost beetle galleries with bun-shaped pellets. Above: Old house borer beetles are black to brownish-black. Bottom left: Granular frass with barrel-shaped pellets created by old house borer larvae.



FLAT OAK BORER. Another cerambycid beetle that deserves a mention is the flat oak borer. This wood-boring beetle is much smaller than the old house borer. Its size is 1/3- to 2/5-inch in length, it is dull yellow in color and has a flattened appearance. The antennae are half the size of their body. The emergence holes are oval and range between 1/8- to 3/8-inch wide. The frass is fine, contains no pellets and is packed into the tunnels. The flat oak borer cycle can be one to several years depending on the seasoning of the wood. It is a pest of stored lumber such as oak firewood but is capable of attacking and reinfesting structural wood from oak and other seasoned dry hardwoods.

TRUE POWDERPOST BEETLE (LYCTID). True powderpost beetles, once from the family Lyctidae, are now categorized as a subfamily, Lyctinae, under the family Bostrichidae. They differ from other bostrichids, such as the anobiid powderpost beetle, because their larvae produce very fine, powder-like frass.

The adults are about 1/32- to 1/4-inch long, depending on the species. The body shape is narrow, elongated and flattened. The pronotum is slightly larger than the head. The

DANILE DYE/ILYEBASS

IS IT TIME TO SELL?

You've spent your career building a business you can be proud of. Late nights, early mornings, blood, sweat and tears—all in preparation for when you would be ready to sell and retire. With the Rollins family, your company will be part of a global brand with the most respected and highest performing professionals in the industry. And you can rest assured knowing that we will remain committed to preserving what matters most – your customers, employees and legacy.

Let us take it from here.

Contact Matt Whiting
404-888-2757 | mwhiting@rollins.com.
All inquiries are kept strictly confidential.





Spray it.

Foam it.

Dust it.

Non-repellent **Nibor-D® Insecticide Dust** helps you get it done in your residential and commercial accounts.



CONTACT YOUR NISUS REPRESENTATIVE FOR MORE INFORMATION



NIBOR-D
INSECTICIDE

STAND OUT IN YOUR COLONY. COMMIT TO YOUR CAREER.

entocert.org



It's time to certify your skills.
Explore new credential and
certification opportunities this
year and take your career to the
next level.

The Entomological Society of
America Certification Corporation
offers four different programs,
giving you the opportunity
to find your professional fit.
Apply today and demonstrate
your commitment to the pest
management industry.



Learn more
and get certified!



/// WOOD-DESTROYING INSECTS

antennae has 11 segments, forming an abrupt two-segment club.

Lyctines only will attack the sapwood of hardwoods, mostly less than 10 years of age. Ash, oak and hickory are often attacked. They also will attack native and tropical hardwoods and bamboo as well.

The exit holes are 1/32- to 1/16-inch in diameter, depending on the species. An excellent indication of activity is a pile of fine frass below the exit holes or on the wood.

WOOD-BORING WEEVILS. Most PMPs likely have never heard about weevils that attack seasoned wood. We normally think about nuts, plants, stored products, etc., being on their menu.

Although not often encountered, one wood-boring weevil (*Hexarthrum ulkei*) has been found feeding on seasoned wood in homes. The adults are 1/8-inch long, subcylindrical and dark reddish brown in color. Its snout is slightly longer and not quite as thick as the head. Antennae have 10 segments and are short and thick with a dull-tipped club.

Dr. Gerald Wegner wrote about *H. ulkei* in PCT magazine back in January of 1992. This is where I first read about them. Wegner goes on to write that he observed dozens of mystery weevils dropping out of recently treated floor support post in a 90-year-old farmhouse in Ohio. He later identified them as *H. ulkei*.

Paul Bello found them in a home deep in the north Georgia woodlands under the structure and in the exterior siding. He asked the owners to go out behind the house to look for a certain type of fallen branches. They brought some back and sure enough found activity in them. These were the same species found in the house.

Another infestation took place in Albuquerque, N.M. Alan Feuer sent me a photo of a weevil he found in the understructure of a house he was inspecting. I was fairly confident that they were wood-boring weevils, *Hexarthrum ulkei*. He later received information that confirmed the identification.

Their damage could be confused with that of anobiid powder-post beetles. The larvae of some wood-boring weevils tunnel mainly in the direction of the grain. The tunnel galleries are as large as 1/16-inch in diameter and are constructed by both larvae and adults. They will attack several types of wood, preferring partially decayed and slightly damp wood.

FINAL THOUGHTS. The control methods used to eliminate these infestations depends greatly on the degree of the infestation. It could range from just removing and replacing the wood to applying a residual product to the infested wood members. A severe infestation could require a complete fumigation using a fumigant such as sulfuryl fluoride, but first you have to determine if the infestation is active or not. A thorough inspection must be performed. If activity is found, you then need to properly identify which wood-boring beetle you are dealing with. The identification must be accurate in order to determine the proper control method. **PCT**

The author is associate certified entomologist emeritus and retired training coordinator at Florida Pest Control in Gainesville.

BED BUG SUPPLEMENT



inside

48 Dealing
with
Resistant
Bed Bugs

56 Bed Bugs
& Public
Health in
2024





By Raymond VanderLouw, A.C.E.

'WHY AREN'T THESE BED BUGS DEAD BUGS?'

A recent case study looked at whether a significant pyrethroid- and neonicotinoid-resistant bed bug infestation can be eliminated without utilizing traditional product applications.

From time to time, the perfect case study opportunity presents itself. In this scenario, a low-income senior housing community reached out for a second opinion on the treatment methodologies being used to control bed bugs. Products that were once very effective had lost nearly all efficacy over the course of many years of application. Product residual was readily observed on tenant furniture, baseboards, door and window frames, hallway furniture and common areas. Bed bugs were discovered harboring in areas where product recently had been applied.

Three main problems existed at this property. The first was the property management company had historically taken care of all pest-related issues themselves. Except for rudimentary training, pest control fell well outside of the core training and responsibilities of the staff, as did the motivation to perform the task. Treatment protocols were passed down from one generation to another with the oratory skill of a campfire historian. Application documentation was sparse, so patching together what had previously happened was an educated guess at best. The same product had been applied for nearly eight years and was showing clear signs of diminished efficacy.

Secondly, because of the repellency of the products that were being applied, the insect distribution was vast. Of the 83 units, live bed bugs were discovered in 62. Bed bugs also were discovered in hallways, including furniture, drop ceilings, pictures, door frames, carpet edges and cove bases. Common areas such as the library, com-



Prosite Pest Control Technicians checked every book and cranny for bed bug activity at the senior living community.

puter labs, billiards room, theater, maintenance storage, social services and property management offices all had activity. Within many units, typical bed bug harborage near beds and heavy-use furniture had shifted to curtains, ceiling/wall junctions, door and window frames, kitchen cabinets, desks, bookshelves and fixtures. Bed bugs were being pushed to nontypical areas, making inspections and treatments more difficult.

The third problem was that in areas where products were applied frequently, efficacy had diminished to the point that

bed bugs aggregated in the same areas that had recently been treated. Although many bed bugs dispersed, some remained in box springs, mattresses, headboards, recliners and sofas, having varying levels of activity. Out of frustration, more frequent applications were being made more broadly, resulting in more product exposure for the residents and staff. Tenants often supplemented staff efforts with their own store-bought solutions. The high emotions in this situation were fueled by blame, excuses, anger, frustration and, in some cas-

COURTESY OF RAYMOND VANDERLOUW



Left: Mattresses and box springs were inspected in 83 apartments. Right: The team at Prosite vacuumed bed bugs eight hours a day, Monday-Friday, for almost six weeks.

es, total silence because of declining hope. Considerable effort was required to ensure buy-in from all stakeholders.

Initially, of the 83 apartments under one roof, management had assumed there were about 20 apartments with ongoing issues. Over a three-day period, starting April 25-27, 2023, every apartment was inspected for bed bug activity by myself and a lead service specialist, and detailed reports were created for each apartment. Each tenant was interviewed during the inspections to better establish a timeline of activity and identify concerns. Documentation included every area where live bed bugs were discovered. Many residents willingly volunteered information on health concerns, such as cancers, weakened immune systems, allergies, COPD and alcohol abuse. They also shared any emotional, physical and psychological issues, and whether they had the ability (or desire) to prepare for a treatment. Several apartments had significant hoarding or other sanitation issues. Social services were tasked with working directly with these tenants.

The results of these inspections surprised everybody, finding live insects in 62 of the 83 apartments, nearly 75 percent. Eleven of the apartments (13.5 percent) were severely infested. Fifty-one of the remaining apartments (61.5 percent) had either high, intermediate or low activity.

It also was obvious from the moment the initial inspections began that traditional treatments would not be effective here.

THE PLAN. What our team at Prosite intended to accomplish by setting up and examining this case was to see if we could eliminate bed bugs from the structure without unnecessarily exposing the tenants to chemistries that were no longer effective. We wanted to restore their trust and confidence in the management team, and to move forward living life without the ever-present fear of bed bugs.

Before treatments were performed, Prosite, with the help of the property management team, had a tenant community meeting to discuss the plan. The community service coordinator provided pizza to encourage participation. Additional steps were taken to coordinate with the laundry machine contractor to make all the machines accessible for several weeks for a flat rate so that people could more easily wash clothes and bedding.

Heavy-duty contractor bags also were made available for both laundry items and trash removal. Tenants were encouraged to *simplify* by removing trash and clutter. Trash collection frequency increased for several weeks as well.

Prosite implemented a low-prep protocol that required six things: No. 1, take out all trash; No. 2, wash all dishes; No. 3, Prosite technicians will need access to pipe holes under all sinks, toilets, baseboard and water heaters; No. 4, all clothes must be picked up and placed in a hamper; No. 5, cat owners needed to clean any litter boxes; and No. 6, practice common good

housekeeping. This list was created, in part, based on the training philosophies of Jeff White of White Mantis Consulting and Dr. Dini Miller of Virginia Tech University.

Utilizing the inspection reports that were previously compiled, Prosite service specialists started with the units that had the highest levels of infestation and the direct common wall neighbors up, down, side to side and across the hall. It was determined that if we could clean these units completely, the rest of the apartments would be easier to control. We considered friends and family members within the building “common” and treated their apartments during the initial services.

The project began in earnest May 5, the week after the initial inspections were performed. Prosite implemented the use of four main tools for the initial clean-out services. Every treatment began with the physical removal of all live insects utilizing Atrix’s Ergo backpack vacuum. We ran the vacuum eight hours a day, Monday-Friday, for nearly six weeks. We cleaned books, beds, baseboards, carpet edges, drop ceilings, desks, tables and chairs. Utilizing the attachment tools provided, we were able to remove nearly all insects, including eggs and cast exoskeletons, which set us up well. Our goal was 95 percent removal through vacuuming.

Prosite also utilized the purpose-built Polti Cimex Eradicator streamer. With a boiler in the tank and one in the handle, the superheated dry water vapor penetrated



fabric pleats, seams, tufts, beading and folds on furniture, curtains, carpets and baseboards. Seemingly inaccessible insects and eggs in cracks and crevices were able to be effectively “poached” with steam.

All void areas between and within units were treated with the desiccant dust CimeXa. With amorphous silica as its sole active ingredient, it can be good choice in sensitive situations, has no known repellency or resistance issues and provides a long-lasting residual effect, according to Rockwell Labs. Door and window frames, furniture, cabinets, pipe hole voids, baseboards/cove base between units, drop ceilings, water heaters, boxes and bed frames all were treated. The Exacticide power duster by Technicide was our tool of choice for this application.

To complete the initial service, Apre-

hend was applied to freshly vacuumed and steam-treated surfaces after they had dried. Applications were made with special, low-volume application equipment in 2-inch bands in areas where bed bugs had previously been, and where they could predictably be. The fungal spores have a residual of up to 90 days, but we decided to reapply at 30 days because of high activity levels. Headboards and footboards, bed frames, door and window frames, desks, recliners, box springs, mattresses, baseboards, nightstands, switch plate covers, and pipe holes were all a focus.

The only products used were CimeXa and Aprehend. This was tightly monitored to ensure results were as untainted as possible. The results in some apartments were better than in others. Where we experienced control issues, it was usually because

of tenants reintroducing bed bugs, a failure to follow laundering instructions, continuing to self-treat or, in some cases, we missed something during treatment. Examples of this would be a toolbox near an infested bed and hanging art made of cardboard. We even encountered a tenant with a prosthetic leg who would leave during the day, only to return later that night bringing live bed bugs back with his leg. Sometimes the answers are less obvious and unexpected.

THE RESULTS. After six weeks of work, 99 percent of the bed bug infestation had been removed. Vacuuming and steam won the day, resolving most of the issues, and the residual effects of the products Prosite used overcame the product resistance issue and restored a sense of community to the residents. Even in the toughest

ER-3™
Triple-Action
Mosquito Control
Adulticide + Lavicide + Repellency

ER-22™
Broad Spectrum
General Insect Control
Bed Bugs, Ants, Roaches...

EcoVenger is plant-based 25B exempt product.
Available at national and regional distributors.
EcoVengerPro.com • 1 (800) 338 0212



Bed Bug Prevention

/bed bæg prē'ven(t)SH(ə)n/

noun

The act of using ActiveGuard® as the centerpiece of a strategy to stop a bed bug introduction from becoming an infestation... for two years.

AllergyTechnologies
The Leader in Bed Bug Prevention



environments, very few bed bugs remained, and the ones that did were unhealthy. Proactive inspections and treatments are ongoing with rooms being inspected on a regular, quarterly rotation.

LESSONS LEARNED. There is no silver bullet in bed bug control. There are many great tools, but it comes down to detailed inspections and treatments, timely follow-ups and concise communication. Overlooking any aspect of the process could lead to less than effective results. Expect the unexpected. Look for the harbor-age areas or behaviors that others might not consider. Those are the “moment of truth” opportunities that will bring success where others have fallen short. It’s hard work; there are no shortcuts.

There is an educational element to the

work. Interactions with staff and tenants must be positive, uplifting, clear and helpful. Meet as a community — often if necessary. Allow for opportunities to ask questions and to clarify the process. Use or create forms that are simple, straightforward and bring clarity.

When it comes to payment, ask for what you are worth! Remember, you are a public health agent and a blessing in somebody’s life.

Document everything in a timely manner: the good, the bad and the terrible. Work as if you will be in court defending your position by the end of the week. Chances are that lawyers have already been sniffing around. Your notes, product documentation, prep sheets, inspection details, 48-hour notices, activity levels, sanitation and clutter issues, tenant and staff coop-

eration are all critical details. A caution though: Do not blame or make excuses.

Lean on industry resources! People will come running to help you succeed. The sharing of information and techniques in this industry is unique and beautiful. With product representatives, equipment manufacturers, academia and more, the answers are an email away. **PCT**

The author is the technical director of Prosite Pest Control in Ellensburg, Wash.

Editor’s Note: The author would like to thank Polti Cimex Eradicator for sending a steamer brush attachment that was used during this study. The author would also like to thank Dr. Nina Jenkins, chief technical officer and co-founder, ConidioTec, for visiting during the study and providing technical support.

The Mattress Safe® Advantage

We Protect Your Mattress™	Bed Bug Certified	Allergy Relief	Waterproof Solutions	Fire Retardant
Mattress and Box Spring Encasements Your First Line of Defense: 10SKUs Program	Penetration - Escape Tested by Board of Certified Entomologists.	Our Fabrics are Viral Penetration and Bacterial Resistance Certified. Test ASTM F1671. Test ASTM G22.	Our Fabrics have a Bond Waterproof Layer that Protects Against Spills but Permits Air to Pass Through.	Fire Retardant. CFR Title 16 Part 1632. FF4-72.



Discover More At: MattressSafe.com

©2023 | Mattress Safe®, Inc. | P: 770-205-5335



THE DAWN OF A NEW ERA

IN BED BUG CONTROL IS HERE



CROSSFIRE CHANGES EVERYTHING.
LEARN MORE AT MGK.COM/CROSSFIRE

CROSSFIRE

www.MGK.com



DR. NINA JENKINS, ConidioTec
Co-founder and Chief Technical Officer



5 QUESTIONS WITH DR. NINA JENKINS

Aprehend is a go-to for many PMPs in the most difficult infestations. But many professionals are enjoying the preventive benefits of Aprehend in multi-unit housing, long-term care facilities and public spaces. Here are some of the questions we get about proactive bed bug treatment.

1 Is Aprehend for active infestation or preventative situations?

Both! Aprehend brings problem properties to long-term resolution. It treats both active infestations and its up to three-month residual prevents the establishment of new ones. It requires a thoughtful approach, but we've heard remarkable success stories using Aprehend to eliminate active infestations and maintain control. We have proactive protocols on our website that discuss these effective strategies.

2 Do you recommend adding anything to the Aprehend proactive protocol?

Mattress encasements are always a good idea. Also, it's important to work closely with the management and janitorial staff. Ideally, units with new residents should be inspected and treated with Aprehend within one week of move-in.

3 How does Aprehend perform in units with a lot of clutter or hoarding situations?

Aprehend shines even in the worst situations despite the level of clutter. All bed bugs must come out to feed and in doing so, will be exposed to Aprehend barriers; they then carry the spores deep into hidden harborages to infect others. This is a real time saver for techs.



4 How long does a proactive treatment take to perform?

Proactive treatment of a hotel room can take under five minutes as long as the tech has clear access to the area where primary barriers are placed, usually the box spring, bed frame, headboard, nightstand and chair. Even active infestations are easier with Aprehend, because the bed bugs take Aprehend back to their

harborage and share it with their friends — getting to the harborages you can't see or reach.

5 Do you offer training for technicians?

Yes, we offer ad-hoc Zoom training for your team. We'll customize it to fit your needs and work with your schedule. Just contact us at orders@conidiotec.com.

Aprehend®

Biological Bed Bug Control



Aprehend
Ready to use

- Kills bed bugs (within 7 days)
- Provides control for up to 3 months
- No mixing or dilution required
- Low odor
- Non-repellent
- Ready-to-Use biological mycoinsecticide for the control and prevention of bed bugs
- Prevents the establishment of bed bug populations when applied (quarterly) (every 3 months)

Active Ingredient: *Beauveria bassiana* Strain GHA* 2.0%

Other Ingredients** 98.0%

Total: 100.0%

*Contains a minimum of 2.2×10^6 viable spores per milliliter of product.

**Contains petroleum distillates.

KEEP OUT OF REACH OF CHILDREN

CAUTION

SHAKE WELL

Do not dilute this product.

Aprehend™ must be applied at low volume application rates using a Low Volume Low Pressure spray applicator. Contact ConidioTec LLC or your distributor for specific information about applicator system.

DO NOT USE STANDARD (HIGH VOLUME) SPRAY APPLICATION EQUIPMENT TO APPLY THIS PRODUCT.

EPA Reg. No.: 89186-1
EPA Est. No.: 89186-PA-001
Net Contents: 16 fl. oz.

Manufactured by: ConidioTec LLC
2440 Earlstown Road Suite 600
Centre Hall, PA 16828

ELIMINATES INFESTATIONS & FRUSTRATIONS PROTECTS PROPERTIES & REPUTATIONS

*Aprehend makes bed bug jobs
easier and more profitable.
Contact us today to get started*



YOUR BRAND HERE

Let us add your brand to the Aprehend brochures, post-treatment instructions, and prep sheet. We'll email files for you to print, email, or post. In addition, we'd be happy to send you Aprehend-branded hard copies. **FREE** for all Aprehend professionals! Contact us: orders@conidiotec.com.

www.aprehend.com • 800.891.8610

ConidioTec
Natural Urban Pest Control



PUBLIC CONCERN

By Josh Shoemaker

Bed bugs can impact public health without being a vector for disease. Here's what you need to know about recent research and why staying informed can help make you a better PMP.

Pest management professionals (PMPs) play a significant role in public health in several key areas, including disease prevention, allergy reduction and food safety. Among the various health-related pests that PMPs contend with, bed bugs are one of the more challenging.

Despite not presently being known vectors of disease, bed bugs still significantly impact public health. Their bites can lead to a range of issues including skin rashes, secondary infections and allergic reactions. Mental health issues that have been linked to bed bug infestations include anxiety and sleep disturbances. Therefore, PMPs play an important role in safeguarding individual and community health by educating the public about and eliminating bed bug infestations.

STAYING INFORMED. Keeping current on the latest public health research on bed bugs offers a PMP many advantages. For one, knowledge about insects and their associated public health concerns builds a PMP's credibility. Clients are more likely to trust and rely on well-informed professionals. This increases the likelihood of the PMP gaining new business and aids in building long-term client relationships.

Additionally, awareness of the specific health issues caused by bed bugs can help inform a PMP on how to best tailor treatment strategies. For instance, in environments with vulnerable individuals (such as health care facilities or homes with residents who suffer from allergies), PMPs might opt for different treatment methods or even recommend that individuals temporarily relocate.

© ROB ZIAD/ISTOCK



Editor's Note: All cited references can be found in the digital edition version of this story on pctonline.com.



Finally, by understanding the health risks associated with bed bugs, PMPs can communicate the seriousness of infestations to clients more effectively. This may motivate customers to engage with more timely and effective treatments offered by the PMP. Client education about the public health issues associated with bed bugs also likely will help ensure cooperation with the treatment.

RECENT RESEARCH. Over the last few years, researchers have examined various associations between bed bugs and public health. Below are three areas that have seen notable developments.

Anemia. The association of bed bugs and anemia (a condition in which one's blood lacks sufficient healthy red blood cells) has been recognized for some time, and recent research is providing additional insights. Anemia can cause symptoms such as fatigue, weakness and headaches. More severe anemia can lead to confusion and even loss of consciousness.

Multiple case reports have been documented in medical journals where individuals with severe anemia were found to be living in environments heavily infested with bed bugs. This includes a 2020 report where doctors described the patient's

anemia as "life-threatening" (Kessler et al., 2020). Following treatment and bed bug eradication, the individual's anemia resolved.

Fewer studies have examined the connection between less-than-severe anemia and bed bug infestations across broader populations. Back in 1962, researchers in India reasoned that widespread bed bugs in a large city could be an aggravating factor for the anemia found among infants and children in that area (Venkatachalam & Belavady, 1962). Fast forward to 2021, a publication in the *American Journal of Emergency Medicine* reported insights from a review of more than 5,000 patient medical records (Sheele et al., 2021a). The authors found that individuals living with bed bug infestations were 61 percent more likely to suffer from anemia than those without infestations. These findings may have more significant implications, as chronic anemia also has been linked to poor health outcomes.

Staph infections, including MRSA. A staph infection is one caused by a particular group of bacteria. MRSA is a specific antibiotic-resistant strain of this group. In 2011, a study that linked bed bugs to MRSA transmission made national news. It was later argued that there were flaws in the study, and the conclusions were questioned.

Independent
Research Proves
CimeXa
insecticide dust

Is The Most
Effective, Longest
Lasting Bed Bug
Product On The
Market!



UNMATCHED CONTROL OF BED BUGS

Even strains resistant to
pyrethroids and neonicotinoids

DESTROYS THE WAXY CUTICLE OF INSECTS

Resulting in rapid dehydration
and death

WIDE RANGE OF USE SITES

Can be used in a wide array of
applications, including on mattresses

LONG LASTING CONTROL

Lasts up to 10 years when
undisturbed



Scan
Here to
Learn More!

Rockwell Labs Ltd
creating the future of pest control

www.rockwelllabs.com

Always read and follow label directions.
CimeXa, Green Zone, Unfair Advantage and Creating the
Future of Pest Control are trademarks of Rockwell Labs Ltd.
©2024 Rockwell Labs Ltd



Additional investigation suggested that bed bugs were unlikely to be a vector of MRSA. Research in this area has continued, and associations have been found between bed bugs and bacterial infections. Still, these findings do not establish, nor strongly indicate, that bed bugs are vectors of bacteria in ordinary settings. Nevertheless, the emerging evidence makes the subject worthy of continued exploration.

In 2021, researchers from the Mayo Clinic and Sanford School of Medicine reported on a retrospective analysis of patients in Cleveland, Ohio, with and without bed bug infestations (Sheele et al., 2021b). They were looking for associations between bed bugs and health-related issues. One of the links they found was that individuals with certain staph infections were significantly more likely

“Multiple case reports have been documented in medical journals where individuals with severe anemia were found to be living in environments heavily infested with bed bugs. This includes a 2020 report where doctors described the patient’s anemia as ‘life-threatening.’”

to have bed bug infestations. While this shows an association, the authors note that the reason for the link is unclear and that further research is needed.

A 2023 study was the first to show that bed bugs can acquire MRSA by feeding through a contaminated surface, and then transmit the bacteria to another surface after seven days, a typical feeding interval for bed bugs (Herrera et al., 2023). The authors note, “These findings provide the first experimental support for the hypothesis that bed bugs may contribute to the

transmission of MRSA in some settings.”

While research has shown that bites can lead to secondary skin infections and that scratching of bites may lead to bacteria entering the body (Amoateng et al., 2022), it is not presently recognized that in normal settings bed bugs transmit these pathogens from one person to another. To be clear, bed bugs are not currently known to be relevant vectors of MRSA or any other bacteria.

Histamine. Histamine is a signaling molecule that plays several roles in the



Bed Bug Prevention

/bed bæg prē'ven(t)SH(ə)n/

noun

The act of using ActiveGuard® as the centerpiece of a strategy to stop a bed bug introduction from becoming an infestation... for two years.

Allergy Technologies
The Leader in Bed Bug Prevention

Las Vegas

UPFDA SPRING CONFERENCE



NETWORKING | EDUCATIONAL PROGRAM | PROFESSIONAL DEVELOPMENT

SAVE THE DATE

APRIL 23-24, 2024

CALL UPFDA FOR
MORE INFORMATION
(540) 681-2114

UPFDA
SUPPLIERS OF INDUSTRY SOLUTIONS



human body. It helps our brain stay alert. It directs stomach cells to make acid. It also works with our immune system. However, if our bodies produce excess histamine, it can cause several health issues including swelling, congestion, itching, diarrhea and inflammation. Antihistamines are common medications used by allergy sufferers to avoid excess and unwanted histamine.

A 2022 study demonstrated that bed bugs excrete large amounts of histamine (Gaire et al., 2022), which is a component of their aggregation pheromone. A recent analysis of environmental histamine levels in infested apartments found the highest concentration of histamine around the bed and bedding material of infested units. The levels were nearly 20 times higher than non-infested units (Gordon et al., 2023).

Still, the extent to which histamine excreted by bed bugs impacts human health is not yet known. Other research has shown that effects from exposure to exogenous histamine can include itching and rashes, gastrointestinal issues, cardiovascular issues and respiratory problems. Given that the histamine excreted by bed bugs is most concentrated around where people spend roughly eight hours a day, it may indeed pose significant risks to human health.

PROTECTORS OF PUBLIC HEALTH.

The ongoing medical research on bed bugs highlights that we still do not have clarity on the complete range of adverse health effects linked to these bloodsucking ectoparasites. Still, there are certain health aspects related to bed bugs that are more

well-understood, including bite reactions and, to some extent, the mental health implications. In light of both the established and unfolding health concerns around bed bugs, PMPs should approach their work with extra diligence and responsibility.

As we continue to uncover the various health implications associated with bed bugs and other pests, PMPs should proudly recognize that they are not simply service providers. They are guardians of public health, tasked with understanding the health implications of pests and applying that knowledge to their practices. By doing so, PMPs not only fulfill their business objectives but also uphold their crucial role in protecting public health. **PCT**

The author is an urban entomologist focused on pests of public health importance.

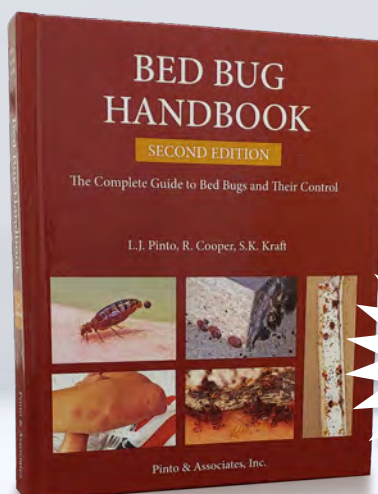
NEW HARDCOVER BOOK! THE COMPLETE GUIDE TO BED BUGS AND THEIR CONTROL!

INSIDE:

- + 375 Pages!
- + 290 Color, High-Resolution Photos!

AUTHORS:

- + Larry Pinto,
Richard Cooper
and Sandy Kraft



NOW
AVAILABLE FOR
IMMEDIATE
DELIVERY

ONLY
\$144

ORDER YOUR
COPY TODAY!

THE BED BUG HANDBOOK, SECOND EDITION, IS NOW AVAILABLE.
FOR MORE INFORMATION OR TO PURCHASE, VISIT **STORE.PCTONLINE.COM**.

Mosquito

CONTROL SUPPLEMENT



INSIDE

62 Mosquito ID Tips

70 Proactive Mosquito Control

STRATEGIC Bites

Good mosquito control requires effective strategies and knowledge of key species. Here is a bit of both to get you started.

By Dr. Mohammed El Damir, B.C.E

The diverse behaviors exhibited by mosquitoes have intrigued scientists, adding complexity to the study of these fascinating insects. With more than 3,500 species globally, and more than 200 in the United States alone (CDC, 2020; Harbach and Kitching, 1998; Harbach, 2015), understanding the detailed behaviors of mosquitoes has become a puzzle for scientists. The buzz surrounding mosquito behaviors has captivated researchers, who strive to unravel the mysteries behind their various activities, from feeding habits to breeding preferences. With the oncoming arrival of the summer sun and the onset of outdoor activities, delving into mosquito behavior becomes crucial for effective pest control and the protection of public health.

Recognizing the significance of mosquito behavior is essential in formulating successful pest control strategies (Burkett-Cadena, 2013). Adult mosquitoes

draw energy from flower nectar, while females necessitate a blood meal for egg development. The larvae in various water bodies manifest a diverse range of breeding habitats (Foster and Walker, 2002). Mosquitoes employ diverse overwintering strategies, confront threats from predators despite their brief lifespan and utilize sophisticated mechanisms for locating hosts (Burkett-Cadena, 2013).

Mosquitoes are crucial in ecosystems as a food source for various animals, contribute to pollination and help maintain ecological balance by controlling populations of other organisms. However, their importance needs to be balanced with the potential health risks associated with disease transmission. Beyond being mere nuisances, mosquitoes pose significant health risks by causing allergic reactions and transmitting pathogens that cause disease, such as Zika, yellow fever, dengue fever, chikungunya and West Nile viruses

(CDC, 2020). Documented transmissions involve various bodily fluids, underscoring the need for further research (Burkett-Cadena, 2013). The severity of symptoms varies, influenced by factors like host type, age and sex. For example, Zika virus infections may be asymptomatic in 80 percent of cases, but newborns can suffer severe brain damage if mothers contract the virus during pregnancy (CDC, 2020).

IDENTIFICATION. The following is information specifically designed for pest control professionals that covers the identification, behavior and health impacts of the most concerning mosquitoes in the U.S.

***Aedes aegypti* (Linnaeus).** *Aedes aegypti*, identified by distinct black and white markings on its body and legs, boasts adult females measuring approximately 4-7 millimeters in length and are known for their preference for feeding on human blood (Vinogradova, 2000). This mosquito

Vector®

BY CATCHMASTER®

THE *LIGHT* AT THE END OF YOUR FLY PROBLEM



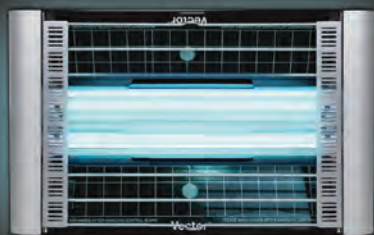
Sanitary &
Non-Toxic



Shatterproof
Bulbs



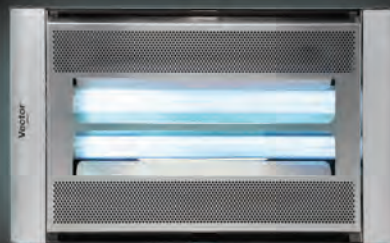
Industrial-Grade
Aluminum



VECTOR PLASMA GRILL
OUR HIGHEST CATCH MODEL!



VECTOR PLASMA ONE
Narrow profile for maximum placement options
ideal for front the house usage



VECTOR PLASMA SCREENED
OUR MOST PREFERRED!
Dual glue boards for maximum catch area
Screened cover for discreet placement



VECTOR 15
Lightweight and discreet,
easy to install and service



VECTOR 30
Sleek design utilizing industrial
grade aluminum
*Available in Black and White



VECTOR OPTIMA
Economical and easy-to-use
Covered catch area for discreet control
Private label options available
*Available in Black and White

SILENTLY ATTRACT AND TRAP FLYING INSECTS WITH A COMBINATION
OF UV LIGHT AND OUR ULTRA-STICKY GLUE BOARDS.



Larvae of *Culex* mosquitoes. As seen in the picture, larvae make dense groups in standing water.

is a primary vector for the Zika virus, a mosquito-borne disease causing severe health issues, especially during pregnancy (Kraemer et al., 2015). Additionally, *Ae. aegypti* transmits other viral diseases such as dengue fever, chikungunya and yellow fever, all with severe health consequences (Bhatt et al., 2013).

***Culex pipiens* Linnaeus.** *Culex pipiens*, commonly known as the northern house mosquito, is prevalent in the northern U.S. and southern Canada. Distinguished by a light-brown body with scattered pale patches, *Cx. pipiens* adults have a dark proboscis, antennae of similar length and wings with thin dark scales (Carpenter and La Casse 1974; Darsie and Ward 2005). Notably, it carries and transmits viruses such as West Nile virus and St. Louis encephalitis virus, contributing significantly to the global prevalence of filariasis (Reeves et al. 1942, Dohm et al. 2002, Molaei et al. 2006, Turell 2012).

***Culex quinquefasciatus* Say.** Commonly known as the southern house mosquito, *Culex quinquefasciatus* is a medium-sized brown mosquito found in tropical regions and the lower latitudes of temperate areas. Adult mosquitoes of this species measure between 3.96-4.25 millimeters in length, featuring brown coloration with darker proboscis, thorax, wings and tarsi (Lima et

al., 2003; Sirivanakarn et al., 1987; Darsie and Ward, 2005). In the southern U.S., it plays a crucial role as the primary vector for St. Louis encephalitis virus and also transmits West Nile virus.

***Culex tarsalis*.** *Culex tarsalis*, identified by its white median band on the proboscis and overlapping white bands on the tarsal joints, is the primary mosquito vector in western North America (Reisen, 1993; Carpenter and LaCasse, 1955). This species is responsible for the transmission of St. Louis encephalitis virus, Western equine encephalitis virus and other viruses such as Llano Seco, Turlock, Gay Lodge and Hart Park viruses (Reisen, 1993). It is also an efficient experimental vector for Japanese and Venezuelan equine encephalitis viruses (Reisen, 1993).

***Anopheles quadrimaculatus* Say.** These mosquitoes are easily identifiable by their unique resting position and distinct features, including long palps and dark scales on their wings forming four darker spots (Rutledge et al., 2005). As a major vector of malaria in the eastern U.S., *Anopheles quadrimaculatus* played a role in the persistence of the disease until its eradication in the 1950s (Rutledge et al., 2005). Despite successful eradication efforts, sporadic cases of local transmission in the U.S. are still linked to *An. quadrimaculatus*

(CDC, 2003).

Apart from its role in disease transmission, *An. quadrimaculatus* is recognized as a pest species (O'Malley, 1992). Identified as a complex of five sibling species, commonly referred to as *An. quadrimaculatus* in collections or fieldwork (Reinert et al., 1997), this mosquito typically targets large mammals, including humans, as its primary hosts.

***Anopheles freeborni*.** *Anopheles freeborni*, often known as the western malaria mosquito, fea-

tures an adult with a brown-to-black color, adorned with yellow-brown hairs and gray-brown stripes on the thorax. The mosquito's scaled wings display four dark spots, with the male's spots being less conspicuous (Carpenter and LaCasse, 1955). Recognized as a significant malaria vector in the western U.S., *An. freeborni* has been implicated in malaria outbreaks, posing a health risk to humans within its geographical range (Aitken, 1945; Carpenter and LaCasse, 1955).

EFFECTIVE MOSQUITO SOLUTIONS.

Effective mosquito control necessitates a comprehensive strategy (Burkett-Cadena, 2013). Here are some prevalent mosquito control practices.

Protective Measures. Advise customers to use insect repellents, such as those that contain DEET, on the body and clothes. They should follow product label directions for proper application and reapply as necessary, especially after sweating or swimming.

Help customers to identify local peak mosquito activity times, usually during dawn and dusk, tell them it's best to plan outdoor activities accordingly and use screens or mosquito nets if they must be outdoors during these hours. It's best to wear long sleeves and pants, and opt for

lightweight, breathable fabrics in light colors to stay comfortable while protecting against mosquito bites. Tuck in clothing to minimize exposed skin.

Customers also can regularly inspect and repair damaged window screens and install door sweeps to close gaps at the base of doors.

During your service visits, regularly inspect and remove larval breeding sites, such as puddles, water in containers, clogged gutters, etc. Trim tall grass and bushes, as mosquitoes often rest in these areas. Suggest customers include mosquito-repelling plants in their gardens.

Mosquito Larvicide Treatments. In the management of mosquito larvae, certified mosquito control professionals leverage a variety of larvicides registered by the Environmental Protection Agency (EPA), applying them strategically through methods like backpack sprayers; governments and municipalities can use truck- or aircraft-mounted sprayers to apply them, tailored to scale, to the affected area. For residential mosquito control, individuals seeking practical solutions can choose from user-friendly options like mosquito dunks or bits, applying them manually to small bodies of water. Larvicides, available in forms such as liquids, dunks, tablets, bits, pellets, granules and briquettes, offer versatility for professionals to select the most suitable application method. Bacterial larvicides are commonly utilized by public health officials, with *Bacillus thuringiensis* subspecies *israelensis* (Bti) being a prevalent choice, along with insect growth regulators and oils/films. Bacterial larvicides such as Bti eradicate mosquito larvae, while insect growth regulators impede their transition to adulthood. Additionally, oils and films form a thin surface layer, effectively eradicating both larvae and pupae.

Strict adherence to label instructions is emphasized for proper larvicide usage. Licensing requirements, managed by government agencies or certified entities, vary by state, requiring compliance with state-specific regulations. Municipalities employ both aerial and ground applications, following state-specific regulations and ensuring

effective mosquito larvicide treatments. The comprehensive approach to mosquito control includes the targeted use of various larvicides — biological larvicides, larvicidal oils, insect growth regulators (IGRs), pesticides and other approved components — to disrupt mosquito development at breeding sites, contributing to effective population control.

Mosquito Barrier Treatments. Mosquito barrier treatments for outdoor areas surrounding homes or structures are commonly used to control mosquito populations. This involves applying insecticides to resting sites such as foliage and shrubs, creating a barrier that prevents mosquitoes from entering the treated area and reducing the local mosquito population. These treatments, commonly applied by pest management professionals (PMPs), use various products, including sprays, mists and foggers. In areas with high mosquito populations or concerns about mosquito-borne diseases, these treatments can be effective. Careful adherence to instructions is crucial to ensure the safety of humans, pets and the environment while reducing the mosquito population.

Here are some best practices for mosquito barrier treatments:

- Carefully follow product instructions for use, storage and disposal.
- Wear required personal protective equipment, including gloves and long-sleeved clothing, throughout the process.
- Employ backpack sprayers, misters or foggers suitable for mosquito barrier treatments.
- Ensure no people or pets are present before treatment. Clear the treated area of pet items, toys, food and other objects. Mix only the required amount, ensuring the solution's pH falls within the recommended range.
- Confirm the misting system functions without leaks.
- Cover surfaces people might contact after treatment.

Thorough Vegetation Treatment. Treat vegetation up to 10 feet high, emphasizing the underside of leaves. There's a suggestion

The Most Advanced Botanical Concentrate Formulation For Mosquito & Tick Control

EcoVia MT
mosquito & tick control

**Provides quick kill
control & a residual
repellency barrier**

**Low use rates
(0.33oz/gal for deer
ticks & mosquitoes)**

**No water set-back or
pyrethroid restrictions**

**Excellent emulsion
when mixed with
water**

**Most tested EPA
Exempt 25(b)
formulation on the
market today!**



**Scan
Here to
Learn More!**

Rockwell Labs Ltd
creating the future of pest control

www.rockwelllabs.com

Always read and follow label directions.
EcoVia, Unfair Advantage, Green Zone and Creating the Future of
Pest Control are trademarks of Rockwell Labs Ltd.
©2024 Rockwell Labs Ltd

TOP 10 THINGS TO KNOW

Have those pesky mosquitoes made your customers' yards a battleground? In2Care is a pioneering company dedicated to advancing innovative solutions for vector control, particularly in combating disease-transmitting mosquitoes. Read on to discover 10 things about the In2Care Mosquito Station — Your solution for **premium mosquito control**.



1

Unique Technology

In2Care utilizes cutting-edge technology to combat mosquitoes effectively. It is the only autodissemination device for mosquito control in the market.

2

Dual Action Effectivity

Unlike conventional products, In2Care targets larvae and adult mosquitoes on two fronts. It kills the larvae inside and around the Station and those beyond the yard. In addition, it kills the adult mosquitoes that enter the Station. It is a mosquito control solution that works 24/7, all year round.

3

Easy Implementation

Hassle-free and quick to install and maintain. The Station integrates into most mosquito control programs and environments.

4

Profitable

In2Care's hard plastics are a one-time investment that last for at least five years. The Station's servicing with the In2Mix refills fits your recurring business model.

5

Environmentally Friendly

In2Care offers a green and effective approach to mosquito control without harming beneficial insects. Using the Stations for mosquito control reduces the amount and frequency of chemical treatments. The Station is made of recycled plastic, lasting at least five years.

6

Sustainable Mosquito Control

Thanks to its autodissemination principle, In2Care reduces the upsurge of adult mosquitoes emerging from breeding sites around the Station. It keeps mosquito populations sustainably low throughout the season.

7

Versatile

The Station is a suitable and easy add-on solution for mosquito

control programs offered by pest control, lawn care and arborist companies. It is a product that helps to gain new customers while retaining the existing ones.

8

Customizable

In2Care is easy to customize for all needs and projects for residential, commercial or public open spaces.

9

Successful Performance

Sold in all the states across the United States of America and in more than 45 countries worldwide with excellent results.

10

Scientifically Proven

Backed by scientific research, In2Care is a trusted solution recommended by experts worldwide.



In2Care[®]

Mosquito Station



1. Mosquito attracted to Station

2. Lands on static netting and picks up biocide



*Larvae are killed



4. Dies within a few days, before transmitting disease

3. Contaminates surrounding mosquito breeding sites* with biocides

*Larvae are killed



THE INDUSTRY'S ONLY MOSQUITO-SPREAD CONTROL SYSTEM

LEARN HOW



- Environmentally friendly
- Profitable: fits recurring revenue model
- Keeps mosquito populations sustainably low throughout the season
- Reduced callbacks

info@in2care.org | www.in2care.org



Understanding mosquito behavior and proper identification are vital for effective long-term mosquito solutions.

that treating upper tree canopies might be more effective in reducing *Culex* spp. abundance (Trout et al., 2007). Treat areas up to 50 feet from structures, as applicable.

Identify and treat shady and moist areas where mosquitoes rest. Do not treat edible or flowering plants that bees and pollinators may contact.

Treatment Beyond Structures. For treating anything beyond structures, follow these guidelines:

- Treat areas where the lawn meets wood, retaining walls and ornamental plantings.
- Treat several yards into any bordering woodlands.
- Treat ground cover vegetation near homes or walkways.
- Treat paths, roadways and areas frequented by people.
- Do not treat within 25 feet of major bodies of water or as the product label informs.
- Avoid spraying during windy conditions and adhere to state regulations.
- Understand that barrier treatment reduces populations of mosquitoes but does not provide 100 percent elimination and lasts three to four weeks. Therefore, success relies on repeated treatments at three- to four-week intervals.

SUMMARY. In conclusion, a comprehensive understanding of mosquito behavior and the identification of key species are vital for effective long-term mosquito solutions. Implementing a multifaceted approach is crucial for success. Safeguarding public health demands collective responsibility and ongoing collaboration between researchers, pest control professionals and communities. By adhering to best practices and advancing control measures, we can create resilient communities that minimize the risks posed by mosquito-borne diseases while maintaining a balance with environmental conservation. **PCT**

The author is technical and training director at Adam's Pest Control.

REFERENCES

- Burkett-Cadena, N. D. (2013). Mosquitoes of the Southeastern United States. University of Alabama Press, Tuscaloosa, Alabama. 64p.
- Carpenter, S. J., & La Casse, W. J. (1974). Mosquitoes of North America (North of Mexico). University of California Press, Berkeley, California. pp. 284-285.
- Carpenter SJ, La Casse WJ. (1955). Mosquitoes of North America (North of Mexico). University of California Press, Berkeley, California.
- CDC. (2020). Centers for Disease Control and Prevention, National Center for Emerging and Zoonotic Infectious Diseases (NCEZID), Division of Vector-Borne Diseases (DVBD). <https://www.cdc.gov/>

Ciota, A. T., & Kramer, L. D. (2013). Vector-virus interactions and transmission dynamics of West Nile virus. *Viruses*, 5(12), 3021-3047.

Darsie Jr., R. F., & Ward, R. A. (2005). Identification and Geographical Distribution of the Mosquitoes of North America, North of Mexico. University Press of Florida, Gainesville, Florida, pp. 79-115.

Duggal NK, Bosco-Lauth A, Bowen RA, Wheeler SS, Reisen WK, Felix TA, Mann BR, Romo H, Swetnam DM, Barrett AD, Brault AC. (2014). Evidence for co-evolution of West Nile virus and house sparrows in North America. *PLOS Neglected Tropical Diseases*, 8(10), e3262.

Foster, W. A., & Walker, E. D. (2002). Mosquitos (Culicidae). In: Mullen G, Durden L, editors. Medical and Veterinary Entomology. Academic Press, San Diego, California. 261-317pp.

Harbach, R. E., & Kitching, I. J. (1998). The Phylogeny and Classification of Anopheles. In *Mosquito Systematics* (Vol. 2, pp. 19-35). CABI.

Harbach, R. E. (2015). Mosquito Taxonomic Inventory. Retrieved from <https://mosquito-taxonomic-inventory.info/>

Kilpatrick, A. M., Kramer, L. D., Campbell, S. R., Alleyne, E. O., Dobson, A. P., & Daszak, P. (2005). West Nile virus risk assessment and the bridge vector paradigm. *Emerging Infectious Diseases*, 11(3), 425.

Lima, M. T., Oliveira, C. M. F., & Azeredo-Espin, A. M. (2003). Species and Distribution of Adult Anopheles (Diptera: Culicidae) in Panama. *Journal of Medical Entomology*, 40(5), 746-751.

Reisen, W. (1993). The western encephalitis mosquito, *Culex tarsalis*. *Wing Beats*, 4(2), 16.

Ross, H. H. (1964). The colonization of temperate North America by mosquitoes and man. *Mosquito News*, 24(2).

Sirivanakarn, S., White, G. B., & Strickman, D. (1987). Culicine Mosquitoes of the Indochina Peninsula (Diptera: Culicidae). *Mosquito Systematics*, 19(3), 188-254.

Trout, R. T., Brown, G. C., Potter, M. F., Hubbard, J. L. (2007). Efficacy of Two Pyrethroid Insecticides Applied as Barrier Treatments for Managing Mosquito (Diptera: Culicidae) Populations in Suburban Residential Properties. *Journal of Medical Entomology*, vol. 44, no. 3, May 1, 2007, pp. 470-47.

Turell, M. J. (2012). Members of the *Culex pipiens* complex as vectors of viruses. *Journal of the American Mosquito Control Association*, 28(4s), 123-126.

Vinogradova EB. 2000. *Culex pipiens* Mosquitoes: Taxonomy, Distribution, Ecology, Physiology, Genetics, Applied importance and Control. Pensoft Publishers, Sofia, Bulgaria. 36-58pp.

Oldham

Chemicals Company, Inc.

Buzz Patrol



The 50 gallon Oldham Buzz Patrol Unit is a high pressure sprayer designed to provide large droplet, high pressure mist coverage. This gives you good product penetration for mosquito control with minimal applicator exposure and operator fatigue.

This unit is supplied with a gun that is adjustable from a straight stream to a cone pattern. Pressure can be reduced easily to provide an all around perimeter sprayer.

This low profile unit is equipped with a quiet running Honda 3 HP engine and a powerful Hypro D252 twin diaphragm pump. The electric reel contains 300 ft of 3/8" hose for easily covering large properties.

The Buzz Patrol is the perfect all around system for efficient perimeter pest treatment as well as mosquito control treatments.

1-800-888-5502
www.OldhamEquip.com



Asian tiger mosquito,
Aedes albopictus

Early ACCESS

Interested in moving to a preventive versus reactive mosquito management approach? Read on for a general overview of Integrated Mosquito Management (IMM) and suggestions for early-season interventions that will help protect your customers all year long.

By Sydney Crawley

“Someday, we’ll all realize, and the public as well, just how ridiculous the dependence upon repetitive spraying is as we get a clear grasp of the new realities of mosquito abatement, and define clearly new values and priorities.” — R.F. Frolli, vector control specialist, California Department of Health, 1971

Thoughtfully predicted by California Department of Health Vector Control Specialist R.F. Frolli in 1971, respected vector control authorities such as the Centers for Disease Control and Prevention (CDC) and the American Mosquito Control Association (AMCA) recommend multifaceted, proactive mosquito management programs instead of “spraying and praying” as a standalone method for effective mosquito management (AMCA 2021, CDC 2023).

Currently, Integrated Mosquito Management (IMM) is the industry-accepted best practice for mosquito control and is a concept that has been followed by many agencies and PMPs for decades. The goal

of an IMM program is to reduce mosquito populations through effective and economical practices with the least adverse environmental impact needed to reduce the threat of mosquito-borne diseases and help achieve a low-level of mosquito nuisance bites (Floore 2006). These programs rely on proactive, in addition to reactive, mosquito control tactics.

IMM PRINCIPLES. According to AMCA, the core of IMM includes five critical tactics:

1. Engaging with the community regularly and communicating openly.
2. Offering monitoring, hot spot mapping and rational setting of an action threshold.
3. Manipulating mosquito habitat to achieve

75 DAYS WITHOUT MOSQUITO RETREATMENTS, GUARANTEED.

Scion® Insecticide with UVX™ Technology comes with a 75-day no-retreatment assurance for mosquitos. Scion gets consistent results with longer protection and fewer applications. This means gas and labor savings, and fewer callbacks.

Visit powerofscion.com



SCION® INSECTICIDE GETS REAL RESULTS

“

AFTER SWITCHING TO SCION, WE REDUCED OUR MOSQUITO VISITS FROM SEVEN APPLICATIONS TO FIVE WITHOUT SACRIFICING PROTECTION. THIS REDUCED OUR LABOR COST AND PROVIDED MORE FLEXIBILITY WITH OUR ROUTES.”

Luke Zimmerman, Owner
Inch's Natural Lawn Care | York, PA

“

SINCE SWITCHING TO SCION IN 2021, WE'VE REDUCED CALLBACKS AND INCREASED OPERATIONAL EFFICIENCY. THE UVX TECHNOLOGY PROVIDES A LONG RESIDUAL AND CONFIDENCE FOR MY APPLICATIONS.”

Trevor Jones, General Manager
Admiral Pest Control | Bellflower, CA

physical control of active mosquitoes.

4. Mosquito management (of multiple life stages) using various tactics including source reduction, bio-control and targeted insecticide applications.
5. Monitoring the population for signs of insecticide resistance.

Many mosquito services provided by pest management companies have an “action threshold” (defined as the point at which pest control action is taken) partly based on customer complaints. Traditionally, these calls, or a customer callback, result in the scheduling of a service appointment, triggering a pesticidal treatment that targets adult, biting mosquitoes. However, proactive mosquito control programs try to reduce mosquitoes in the environment before they ever take wing as adults. This is because research shows that the most effective way to reduce mosquito population density in the long term is through larval source management (LSM), not reactive adulticiding (AMCA 2021), because all mosquitoes require water in their life cycle. If you eliminate, modify and monitor water sources at an account, you may prevent egg-laying by female mosquitoes and development of mosquito larvae into adults.

Proactive mosquito control is invaluable in that it can reduce our reliance on adulticides and possibly delay the evolution of insecticide resistance to commonly utilized active ingredients. In addition, in areas where mosquito-borne diseases are

circulating, human infection reduction also may be achieved (Reisen and Brault 2007). Although a professional pest management organization likely cannot rely on proactive measures alone, supplementing pesticidal application with preventive control efforts can lead to lower-level mosquito population density and, hopefully, fewer bites. Offering proactive services or educational marketing collateral also will demonstrate to your customer that, as a team, you can work together to create a comprehensive, environmentally sustainable, science-backed game plan to tackle their mosquito problem.

ELEVATE YOUR OFFERINGS. To elevate your mosquito control offering(s) and help your customer manage mosquitoes year-round, consider the following services and create educational marketing collateral to help the customer understand how to perform some of these proactive measures:

1. Assess storm water ditches and grated culverts. Make sure that the customer monitors these areas and removes debris that can cause a buildup of materials that lead to stagnant water. Problems with areas maintained by the city (storm drains, catch basins) should be reported to local stormwater maintenance teams by the customer. This prevents mosquitoes emerging from these areas (which often cannot be treated by PMPs) from being perceived by the customer as a failure of your program.

2. Walk through the lawn and landscape with your customer and identify any depressed areas that could hold water. If your company provides landscape services, offer to topdress (laser level) the lawn for them. Lawn depressions that hold water for five or more days could serve as a breeding site for some mosquito species. If your company does not provide this service, encourage the customer to find a solution to this issue before mosquito season begins.
3. If your customer utilizes a septic system, ask them if it is properly maintained. EPA recommends inspection every three years and pumping of the septic tank every three to five years. Mechanical components should be inspected annually. Poorly maintained septic systems can serve as a cryptic mosquito breeding habitat.
4. Conduct a thorough inspection aimed at identifying containers that could breed urban pest mosquitoes such as *Aedes albopictus* or *Culex quinquefasciatus*. Once these items begin to fill with water throughout the breeding season, they should be emptied on a regular basis. Called the “tip-and-toss” method, overturning containers holding water eliminates at least one source of water that could be used by populations of container-breeding mosquitoes. Potential items to show to your customer include buckets, tarp covers, garbage bins, fountains, downspouts, pet bowls, flower pots, etc.

IMM Reminders and Additional Advice

- Do not get bogged down in trying to perfect and execute all aspects of an ideal IMM program. Instead, utilize the resources you have and focus on the services that you can feasibly offer. Execute these services to the best of your ability.
- If you notice signs of mosquito-borne disease in your area during treatment (e.g., dead birds), notify your local mosquito control district or public health department.
- Notify neighbors, when possible, of impending adulticide applications. This will allow you to: No. 1, network within the commu-

- nity; No. 2, demonstrate that you are a responsible pesticide applicator; and No. 3, allow those with sensitive environments to prepare.
- When possible, identify mosquitoes that you observe to species level. Learn more about the biology and behavior of the pest species in your area so that you are better prepared to execute control tactics. Mosquitoes flying in from long distances would require less input versus container-breeding species that likely came from the customer's yard or an adjacent property. This also

- will allow you to communicate the scope of the problem more efficiently to the customer. If you utilize traps, it will allow you to understand whether the trap type you are using is appropriate.
- Research shows that community-wide approaches and community engagement are important aspects of effective mosquito control programs (Healy 2014). Do not underestimate the impact of marketing collateral and informational materials and their influence on the success of your mosquito control efforts.



An Asian tiger mosquito showing the typical white stripe on its head and back.

Waste management also is crucial — disposable refuse that can collect water should be bagged and disposed of in an appropriate manner. If possible, drilling

holes in the bottom of a trash can may prevent water from accumulating. Items as small as a plastic bottle cap can serve as refuge for mosquito larvae and potentially produce adult mosquitoes.

5. Early spring is the perfect time for gutter cleaning. Remind the customer to remove any debris that could stop water from flowing properly. If your company provides gutter guards or a similar product, this is a great time for a sales pitch.
6. For permanent water sources such as birdbaths, ornamental ponds or rain barrels — familiarize your customer with the concept of larviciding. Explain the mode of action, the minimal non-target impact and the required re-treatment interval. Having this conversation with customers who are either a) pesticide-averse or, b) insist only on barrier treatments, may be easier before the season is hectic and the customer is

already anxious and frustrated.

7. In addition to preventing adult mosquitoes in the environment, you also can help customers prevent bites from those adults that do happen to develop. Offer exclusion services or educate the customer on the importance of exclusion practices. Window screens that are damaged should be replaced to prevent mosquito entry. Gaps around windows and door frames also should be repaired. Exclusion services work for many pests and the broad-spectrum utility may be attractive to customers, too.
8. Encourage the customer to trim back any overgrown grass or thick vegetation where mosquitoes can find refuge. Mosquitoes rarely rest in the hot, sunny parts of the lawn. Instead, they harbor in shaded areas. Many popular ornamental plants are great harborage for adult mosquitoes. Make sure the

Proudly
Sponsoring
CEU VIRTUAL
ACADEMY



Scan & Attend for Free!

ER-3™

Triple-Action Mosquito Control

Adulticide + Larvicide + Repellency



ER-22™

Broad Spectrum General Insect Control

Bed Bugs, Ants, Roaches...



EcoVenger®
Formerly **EcoRaider®**

EcoVenger is plant-based 25B exempt product.
Available at national and regional distributors.
EcoVengerPro.com • 1 (800) 338 0212



customer understands this concept, and if they are unwilling to alter vegetation that they understand the risk.

9. If your company offers a mosquito trapping service, installation of these traps prior to peak breeding season is ideal. Explain how the traps work, why they are efficacious and how they can complement the more traditional barrier sprays that the customer may be used to.

THERE'S STILL TIME. Once temperatures consistently hover above 50 degrees Fahrenheit, mosquito activity is possible. Eggs laid by female mosquitoes the previous season will hatch once they are exposed to water. Once this cycle begins, mosquito populations will grow exponentially. Spraying emerging adults on a weekly basis is not environmentally sustainable, nor is it a permanent solution for your customer or realistic for route

scheduling. Adopting proactive practices and offering an IMM approach is a great way to build a long-term relationship with a customer while also maintaining a controlled grasp on their mosquito problem. That being said, we are still early in the 2024 mosquito season, and in many parts of the country, there is plenty of time to engage in proactive mosquito control measures, such as larval source management, that can synergize control measures taken later in the season. **PCT**

The author is the principal vector scientist for Rentokil-Terminix. She is currently stationed at the new Rentokil-Terminix North America Innovation Center, located in Dallas, Texas.

REFERENCES

American Mosquito Control Association (AMCA). 2021. Best Practices for Integrated Mosquito Management. https://www.mosquito.org/assets/pdf/hr_november_2021_amca_bmp_ma/

Centers for Disease Control and Prevention (CDC). Updated October 27, 2023. Integrated Mosquito Management. <https://www.cdc.gov/mosquitoes/mosquito-control/professionals/integrated-mosquito-management.html>.

Floore, T.G. 2006. Mosquito larval control practices: past and present. *JAMCA*. 22: 527-533. [https://doi.org/10.2987/8756-971X\(2006\)22\[527:MLCPPA\]2.0.CO;2](https://doi.org/10.2987/8756-971X(2006)22[527:MLCPPA]2.0.CO;2).

Frolli R.F. Resistance and changing approaches to mosquito control; Proceedings of the Thirty Ninth Annual Conference of the California Mosquito Control Association; Oakland, CA, USA 25-27 January 1971; pp. 1-2.

Healy, K., Hamilton, G., Crepeau, T., Healy, S., Unlu, I., Farajollahi, A. and D. Fonseca. 2014. Integrating the public in mosquito management: active education by community peers can lead to significant reduction in peridomestic container mosquito habitats. *PLoS ONE*. 9(9): e108504. <https://doi.org/10.1371/journal.pone.0108504>.

Reisen, W. and A.C. Brault. 2007. West Nile Virus in North America: perspectives on epidemiology and intervention. *Pest Manag. Sci.* 63: 641-646. <https://doi.org/10.1002/ps.1325>.

Fog the Monsters

TF35

To Fight the World's Deadliest Monsters, Make Sure You Have the Right Tools for the Job!

Use IGEBA foggers to take on real life monsters like mosquitoes, flies and gnats. All IGEBA foggers are available from Nixalite, the US Canada Sales and Service Center.

- Portable Pulse Jet Thermal Foggers
- Self-contained ULV Cold Foggers
- World renown quality & reliability



Nixalite® of America Inc
Quality Products & Expert Service

Call 309.755.1189 or visit us at www.nixalite.com



We hate to see you go.

RENEW YOUR SUBSCRIPTION BEFORE IT EXPIRES!

Renew each year – either online or by sending us updated contact information – so you don't miss a single issue of your favorite industry publication!

Send contact info to:
subscriptions@pctonline.com

RENEW HERE ▼



Mosquitoes keep coming. You need the best to break the cycle.

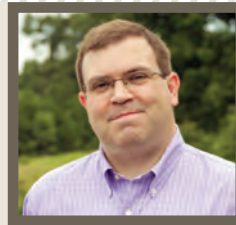
Combat rising mosquito populations with a solution that will take your control to the next level. Suspend® PolyZone® insecticide provides long-lasting control for up to 90 days, even in tough weather conditions and on challenging surfaces. By reducing callbacks, it'll keep your customers confident and help your business grow.



See how Suspend PolyZone
insecticide can advance
your business

envu™ Mosquito
Management

ALWAYS READ AND FOLLOW LABEL INSTRUCTIONS. Environmental Science U.S. LLC, 5000 CentreGreen Way, Suite 400, Cary, NC 27513. For additional product information, call toll-free 1-800-331-2867. www.envu.com. Not all products are registered in all states. Envu, the Envu logo, PolyZone® and Suspend® are trademarks owned by Environmental Science U.S. LLC or one of its affiliates. ©2024 Environmental Science U.S. LLC. ES-0324-SUSP-109-A-R1



Look Up, Down and All Around

In this industry, we are constantly looking for pests that are impacting our clients. Penetrations in walls, gaps around doors, the ant trail up the wall — these are the things we see every day while we are servicing our clients.

One thing I have seen us *not* do well over and over again is lifting our heads and looking up. We are so trained to look down that we forget to elevate our eyes and see that some problems are actually on a different level than we realized.

I see this at accounts where the technician “knows” where the problem is, even as the problem persists. We tend to put blinders on and just focus on that area as being the problem, but we are only treating the symptom of an unknown or unnoticed issue.

RODENTS. Dealing with rodents is a great way to showcase this. Have you ever had rodents in an area and put out a bunch of traps, just to never catch a single one? Or you do catch one here and there, but the problem never actually goes away? It's likely that you are putting the traps on the ground, when the rodent never touches the ground.

This is a common problem in commercial properties with multiple layers of pipes in the same area, a board along a wall or rodents living in the shelving unit (yes, inside of it). They have no need to go near your traps. I suggest securing multiple devices on all elevations with zip-ties to catch the rodents you are missing that are causing excessive callbacks.

Just because the client is seeing evidence of rodents on the floor or counter, it doesn't mean that is where they are living. I have seen rats on many occasions live in the ceiling and climb down every night to feed in a kitchen. Don't forget to look for access panels in ceilings, particularly in hotels. I have found mice living inside these gaps and traveling between floors multiple times. If someone had just looked up and explored, they could have solved the problem pretty quickly.

ANTS. Ants can be tricky, especially if they are found on upper levels. Lots of people talk about ants traveling to the roof for tree limbs,

but I find most ants in upper levels end up having nests in the gutters. This can happen with ground-level issues as well, but not as commonly.

If you still have ant issues after using a quality product and making multiple applications around the perimeter, perform spot treatments on the interior and use baits, then explore another elevation. Look up at gutters, look around window frames and definitely look in the attic if they are carpenter ants.

FLEAS. Fleas can be another tricky situation — and an odd one to look up to solve the issue. However, if the client has a cat, look at higher levels where the cat might be resting. This just might solve your problem. I remember once having a cat making a bed out of insulation, and that is where the main flea problem was allowed to continue.

BED BUGS. If someone is complaining about bed bug bites and you see evidence on the walls but cannot find any bed bugs on the bed, look up. They could be bat bugs. If you have confirmed that they are, in fact, bed bugs, look to see if the client has a popcorn ceiling. I have seen bed bugs living inside bubbles and damaged ceiling areas. By looking up, you can provide a customer with much-needed relief and help accelerate the resolution.

COCKROACHES. PMPs tend to focus on cracks and crevices *only* when it comes to German cockroaches. However, you can't just look at the piece of equipment the customer is

complaining about.

I worked with technicians who treated an oven for weeks and still had cockroach sightings multiple times a week. When I went to the site with one of these technicians, he showed me where the complaints were coming from. If he had lifted his eyes, he would have seen the dozens of cockroaches climbing all over the cabinet right above his head. He had his blinders on and was focusing on the wrong area.

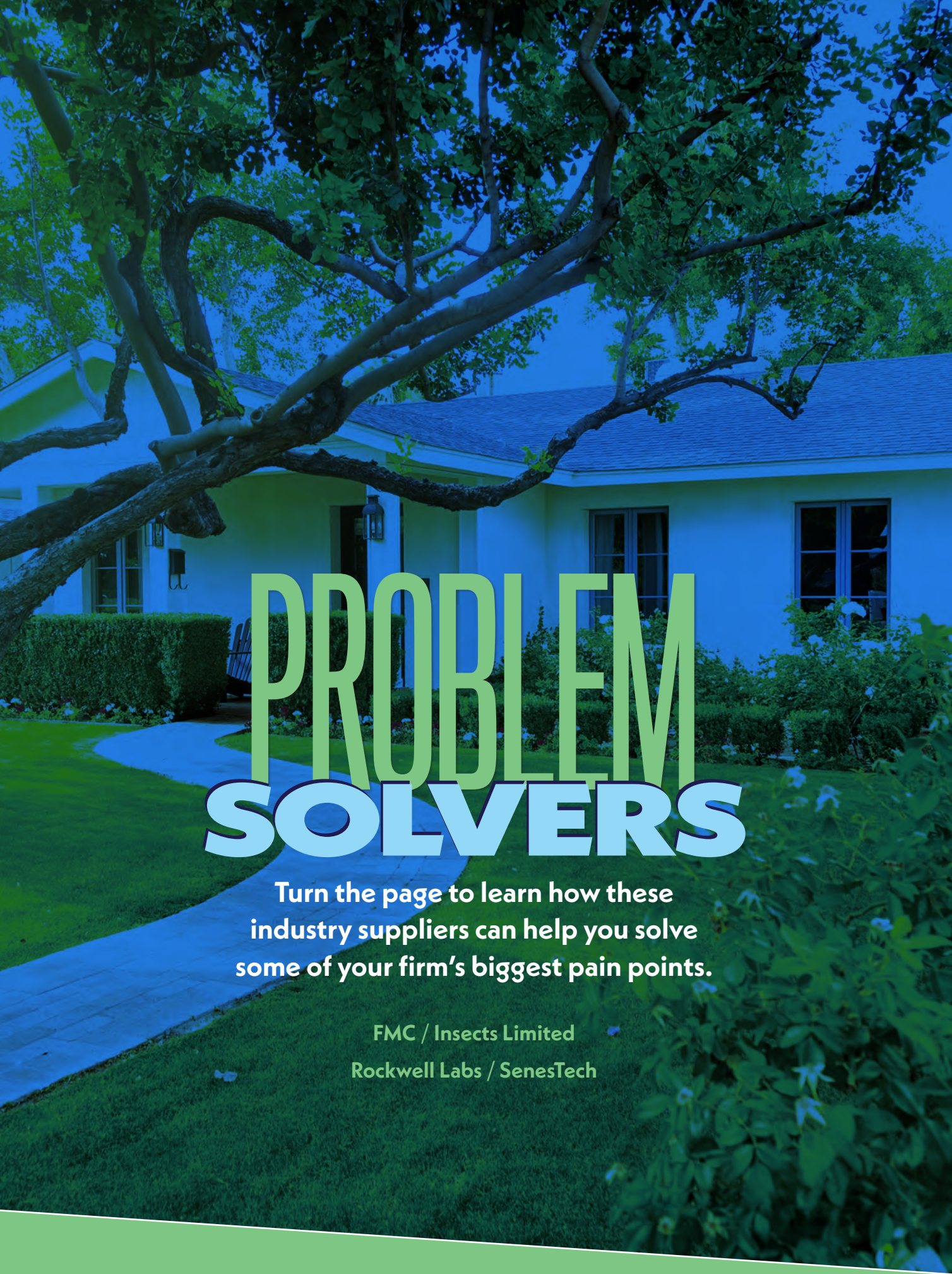
FINAL THOUGHTS. Most situations PMPs run across are similar to other experiences with minor variations. But when you run into situations where you are not resolving the issue, take off your blinders. Pretend it is a new account. I've noticed that when we look at an account like it is brand new, we explore more and are more apt to find the source of the problem.

If you keep treating the same area over and over again, you are just wasting your time and breaking down credibility with the client. Lift your head and eyes up every now and then, and you can alleviate some frustration for the client and yourself. **PCT**

David Moore, B.C.E., received his master's degree in entomology from Virginia Tech University in 2006. He serves as the manager of technical services for Dodson Pest Control. He has worked with the United States Agency for International Development in Mali and with Virginia to help create the Virginia Pollinator Protection Plan. He is treasurer of the Urban Pest Management Technical Committee (upmtc.org).

Looking up can help PMPs solve tricky pest problems.





PROBLEM SOLVERS

Turn the page to learn how these
industry suppliers can help you solve
some of your firm's biggest pain points.

FMC / Insects Limited
Rockwell Labs / SenesTech

Scion Delivers Effective Control and High Return on Investment (ROI)

Cut callbacks and boost operational efficiency with Scion®.

Pest management professionals (PMPs) always strive to provide their customers with the highest quality pest control at the most efficient prices. However, inflation costs across the U.S. economy over the past several months have made getting the best bang for your buck even more important.

As PMPs know, determining the overall cost of pest control products is not as simple as looking at the sticker price. Use rate, labor costs and any required product or time for reapplications all factor into how much a PMP will be investing into providing an effective control program.

Scion® Insecticide with UVX™ Technology is designed to maximize control of mosquitoes, ants, spiders and more than 25 other insects at a low cost to PMPs. In addition to its broad-spectrum label, Scion® has a long list of approved conditions, including indoor and outdoor spaces, residential, and commercial and food handling establishments. This flexibility makes Scion® the ultimate go-to for fighting insect populations in nearly any environment.

A little bit of Scion® goes a long way. Scion's® active ingredient, gamma-cyhalothrin, is a highly effective pyrethroid that is powerful even at low use rates. Scion is backed by three product assurances: 75-day mosquito, 75-day tick, and 90-day perimeter control at the use rate of 0.65 fluid ounce-per gallon of water.

The mosquito and tick programs guarantee control of those pests for 75 days when Scion® is applied according to the label. Similarly, the perimeter assurance program offers 90 days of no retreatments to exterior perimeter barrier applications.

In the event a retreatment is needed, FMC will provide the required amount of product needed for retreatments within that period. An added boost to a PMP's confidence, these assurances are offered to FMC True Champions members.

Once Scion® is applied, PMPs will not have to worry about its durability. The formulation has incredible staying power,

FMC Innovations You Can Trust. People You Can Count On.

75 DAYS OF MOSQUITO CONTROL + **90 DAYS OF PERIMETER PROTECTION**

SCION®
INSECTICIDE
WITH UVX™ TECHNOLOGY

90-DAY PERIMETER ASSURANCE
75-DAY ASSURANCE

The image shows a white plastic bottle of Scion Insecticide with a label that includes the FMC logo and product details. To the right of the bottle are two circular graphics: one for '90-DAY PERIMETER ASSURANCE' with a house icon and another for '75-DAY ASSURANCE' with a mosquito icon. The background is a split red and green field with a white fence line.

offering continuous residual protection against mosquitoes and other pests for at least 75 days, even when faced with harsh surfaces, high temperatures and intense sunlight. These conditions may degrade other products, but Scion® continues to provide longer protection with fewer applications and callbacks.

Not only does Scion® provide the operational efficiency to maximize a PMP's investment on those applications, but it also provides long-lasting control and gives PMPs the freedom to take on additional clients and increase their bottom line.

For an insecticide product that provides long-lasting control without straining your wallet or schedule, turn to Scion® Insecticide with UVX™ Technology.

To learn more about this product, visit gss.fmc.com. ■

Pheromone Technologies Pave a Way to Reduce Stored Product Pests

The pheromone technologies and products developed at Insects Limited in the United States provide PMPs with powerful tools.

Tracking down the source of a stored product pest (i.e., Indianmeal moth, warehouse beetle, cigarette beetle, flour beetle, etc.) is a daunting task when looking at a distribution center (DC), food production warehouse, seed facility or any large space holding dried food goods, grain, cereals or textiles. The pheromone technologies and products developed at Insects Limited in the United States provide powerful tools that utilize the insect's biology to help locate the infestation "needle" in the proverbial "haystack" of a large storage space.

Insects use chemical scents to communicate with each other when they are startled (alarm pheromones), when they are happy and well-fed (aggregation pheromones) or when it comes time to attract a mate (sex pheromones). They also are

attracted to food odors or kairomones that advertise a place to eat for the insects. The staff of entomologists at Insects Limited work diligently in their new Center for Stored Product Protection lab to ask the research colonies of insects raised in their facility which pheromone blends or food scents will work best to attract the most problematic stored product pest insects. The best results from professional monitoring systems come when the entomologists from the Center of Stored Product Protection take one of the tested attractant Bullet Lures® and combine it with a trap that is specifically designed to match the physiology of the insect being monitored. For example, moths often prefer to fly directly into a hanging trap (i.e., NoSurvivor® brand diamond traps) while many species of beetles are more apt to crawl into a pitfall trap on the floor (i.e., All Beetle® Trap from Insects Limited).



Pest management professionals need assistance when handed the formidable task of locating a single infested bag or pallet in a warehouse space that may be capable of holding nearly 10,000 pallets. The USDA-National Institute of Food and Agriculture reported in 2023 that between 20-40 percent of global crop production is lost to pests annually¹. If a source of stored product moths or beetles can be detected early enough, the infested material can be removed or treated before the infestation spreads to other areas of the warehouse or other products held in these large storage areas. Early detection is essential when it comes to preventing damage and complaints.

The attraction and design of the professional monitoring systems designed by Insects Limited offers the best means of detecting pest populations early enough to reduce product loss and eventual customer complaints. The role that pheromone monitors play is pivotal in providing a professional and innovative solution to these unique pest situations. ■

¹ <https://www.nifa.usda.gov/about-nifa/blogs/researchers-helping-protect-crops-pests#:~:text=Between%2020%25%20to%2040%25%20of,is%20lost%20to%20pests%20annually>

A Unique New Solution for Small Fly Control

EcoVia Fly Killer kills all life stages of flies and odor-causing bacteria.

Small flies — red and dark-eyed fruit flies, phorid flies and drain flies — have emerged over the last 20 years to be a persistent pest in food service and processing areas, as well as other accounts with chronic moisture and organic build-up. And large filth flies — house flies and blow flies — have long been a chronic pest anywhere there is food, trash or other organic debris.

A multi-pronged approach is generally required for the best results, and fortunately, there is a unique and powerful new tool available.

EcoVia Fly Killer represents a whole new approach to solving filth-fly problems. A new research-based botanical insecticide from Rockwell Labs, it's part of the EcoVia range, and is a 25(b)-exempt product.

Powered by botanical insecticides, it has uniquely fast-acting and strong repellency, with minimal label restrictions for use in food areas, drains and outdoor impervious surfaces such as dumpsters and pads.

Third-party research demonstrates that it quickly kills all life stages of small and large flies on contact and provides strong repellency to adult flies to repel them from laying eggs in attractive breeding areas. It also kills odor-causing bacteria. The natural plant oils provide a fresh herbal-lemon fragrance.

Featuring multiple application options, EcoVia Fly Killer can be applied to drains straight from the bottle. The thickened formula coats the sides of the drain. The included surfactant helps the product to penetrate the drain scum to quickly kill eggs and larvae and helps with clean-up.

EcoVia Fly Killer can also be diluted 50/50 with water and sprayed, foamed or mopped onto surfaces where organic build-up occurs, which attracts flies to feed and lay eggs. EcoVia Fly Killer will foam without any additives other than water when applied with a foamer like Rockwell's new Power Foamer, or even a foaming trigger sprayer. For thicker, longer-lasting foam, add OutLAST Pro at 1 ounce-per-gallon to diluted EcoVia Fly Killer.

How does EcoVia Fly Killer fit in with other Rockwell solutions? BorActin Insecticide Powder remains the best option

to treat cracks, crevices and "mystery" voids that may be damp and can collect organic debris, but that don't have a lot of routine water flow.

Boric acid will provide very long residual in these areas to prevent them from becoming fly breeding sites. There is no issue applying EcoVia Fly Killer in the same area as BorActin as the two products won't affect each other.

And what about InVade Bio Sanitation? InVade products are not pesticides. They represent the most effective way to clean areas with chronic moisture and organic debris, since they contain powerful microbes that actually digest organic debris.

They can be applied in the same areas or even together. Since EcoVia Fly Killer kills odor-causing bacteria, it can

temporarily impede the action of InVade. However, once the botanical oils dissipate, the microbe spores in InVade will begin to produce colonies of friendly bacteria to digest organic debris, delivering a kill and clean one-two punch.

Lastly, Rockwell Labs' EcoVia Fly Killer will not be negatively affected if the account is using disinfectants routinely.

For more information on products such as EcoVia Fly Killer, InVade Bio Sanitation and BorActin, please visit the Rockwell Labs website at www.rockwelllabs.com. ■



Revolutionary Rodent Fertility Control Provides More Effective, Long-Term Solution

SenesTech's line of rodent reproductive inhibiting baits allow PMPs to address a host of issues.

Revolutionary products don't come along every day. In the rodent control world, we have seen drastic improvements over the decades since the first commercial trap was introduced in the late 1800s. Technology has literally made the mouse trap better. One issue has never truly been addressed, until now. SenesTech's line of rodent reproductive-inhibiting baits finally allow pest management professionals (PMPs) to address a host of issues, leading with the birthrate of rats. Much like insect growth regulators have influenced the way insects are controlled, SenesTech's rodent control products can eliminate new populations before they are born.

SenesTech solutions complement other rodent control products and enhance results. While rodenticides can knock down the population quickly, any remaining survivors can quickly repopulate because of rats' short reproductive cycles, large litter sizes, and ability to re-invade new areas. Fertility control prevents rats from increasing their numbers for an outcome that is more effective and long term.

Rodenticides (first available in the 1940s) can become less effective over time due to rodent behavior, bait aversion, genetic resistance, or increased tolerance. Rats that survive in the population are typically the ones that won't consume rodenticides or learn to outsmart traps. Additionally, since SenesTech's products are minimal to no risk with active ingredients derived from plants, the exposure for secondary poisoning or other unwanted circumstances is limited. Giving customers peace of mind, while limiting liability, is a great added benefit.

This addition to an Integrated Pest Management (IPM) program helps avoid the frustration of spending time, money, and labor in reducing rat populations, only to have the hard work reversed. In circumstances where rodenticides are not available for use or are limited, fertility control products like ContraPest® and Evolve™ provide options where none may have existed before. Customer accounts that are animal sensitive, food producing or otherwise regulated, make up a significant market for rodent control where rodenticides are not



an option. The great news is that rats have a relatively short life cycle that will allow for control using rodent fertility products as a stand-alone solution. Now that's revolutionary!

SenesTech products include:

- **ContraPest®** — an EPA-registered, rat contraceptive bait in the form of a highly palatable liquid, developed specifically for Norway (brown) rats and roof (black or ship) rats.
- **Isolate Bait System™ with ContraPest®** — a delivery system ideal for standard infestations that is efficient and easy to use for rapid placement and setup.
- **Elevate Bait System™ with ContraPest®** — a delivery system for baiting in elevated areas that are hard-to-reach with standard bait stations and can be mounted on horizontal or vertical surfaces.
- **Ultimate Bait System™ with ContraPest®** — a delivery system ideal for large deployments, that can be serviced less often, and is great for high infestation areas.
- **Evolve™ Soft Bait** — a highly palatable, contraceptive soft bait that is cost-effective, and easy to deploy for versatile use.

For more information on SenesTech and its solutions, please visit: www.SenesTech.com ■



Setting Realistic Marketing Goals for Your Small Business

There are a few things that are certain as a business owner, and one of them is the necessity of establishing a robust marketing strategy to thrive in a competitive industry like pest control.

It's one thing to want to be successful in your business goals, but achieving them is another story. With the help of realistic goals in mind, you can keep your business on the track to a prosperous future. This article will explore the importance of setting realistic goals for your marketing strategy, as well as the tools available to get you there.

In every aspect of life, goals are the compass that guides us toward success. When running a business, they serve as the guardrails that keep us on the right path toward substantial growth and increased visibility. When it comes to the pest control industry, where competition is high and building a trusting customer base is vital, clear-cut goals will be the cornerstone of a strong strategy to place — and keep — your brand top of mind.

Setting solid goals for your marketing strategy is the secret sauce to establish a reliable, consistent online presence. Mastering a digital presence is the name of the game in today's landscape, and having a well-defined strategy is a surefire way to ensure your business is not only visible, but really strikes a chord with your target audiences.

SETTING YOUR GOALS. The first step in setting goals is identifying the end game — what do you want for your business? If you're a go-getter, which most business owners tend to be, it's more than likely that you have some pie-in-the-sky dreams for your brand. There's nothing wrong with that; in fact, it's encouraged! However, Rome wasn't built in a day, which is why it helps to set SMART parameters around these goals to ensure they're realistic and can be accomplished. After all, what is the allure of a goal if you can't reach it?

The SMART framework means that your goals are Specific, Measurable, Achievable,

Realistic and Time-oriented. Rather than saying you would like to increase website traffic, try aiming to achieve a 20 percent increase in website traffic over the next quarter through paid initiatives like targeted SEO strategies. With clear goals, you can avoid vague language and keep your eyes on the prize.

While establishing your marketing goals is a wonderful first step, the key to success is maintaining those goals, analyzing your strategy's performance and adapting as needed. This constant process serves as your foundation to course-correct along the way, ensuring your business remains on the right

side understanding of existing and potential customers. These offerings, in addition to the wealth of insights you can tap into via the social media platforms you may be leveraging for your business, can guide you in refining your marketing strategy for optimal performance.

Another way to analyze how your strategies are landing is through surveys, which can provide a better understanding of customer pain points and satisfaction levels with your business and its services or products.

According to the Phoenix Business Journal, only 51 percent of companies even attempt to develop goals, and among the companies

“Be sure to regularly review and reassess business goals, and don't be afraid to switch up your marketing channels if the current approach falls short of the results you initially set out for.”

track toward those initial objectives.

Fortunately for business owners, there are quite a few simple ways to assess the success of your marketing efforts. While they may vary depending upon your specific goals and objectives, key performance indicators (KPIs) can include website traffic, social media engagement, email marketing metrics and cost-per-click (CPC). Keeping a close eye on these metrics during campaigns will provide valuable insights into the effectiveness of your marketing channels, measuring the online visibility and message impact of your business.

By now, you've probably gathered that every business has its own set of ambitions and necessities. Likewise, each marketing channel and tactic stands out from the next, designed for various objectives, uses and audiences. This underscores the importance of thoughtfully considering which channels align best with your unique goals.

TRACKING YOUR GOALS. There is no shortage of resources at our fingertips to help monitor and measure the results of our marketing efforts online. Tools like Google Analytics and email platforms like Mailchimp and HubSpot offer real-time data to give you a comprehen-

surveyed, only 6 percent regularly revisit them. As a best practice, set aside time to regularly track your marketing goals and how your current tactics resonate with audiences — and remember, flexibility is key! Setting goals is a smart move, but maintaining a level of adaptability with your marketing strategy is an even smarter one. The marketing landscape is a dynamic one, and it's constantly changing based on consumer behaviors and industry trends, among other factors.

Be sure to regularly review and reassess business goals, and don't be afraid to switch up your marketing channels if the current approach falls short of the results you initially set out for. In the ever-evolving marketing landscape, the ability to pivot will set you and your business up for long-term success. Creating and evaluating your company's marketing goals empowers you to appraise your efforts and celebrate each and every win along your company's journey to success. **PCT**

Jim Fredericks is the executive director of the Professional Pest Management Alliance and senior vice president of public affairs for the National Pest Management Association. For more about PPMA, visit www.npmapestworld.org/ppma.

The new era of technology

SEE YOU IN ATLANTA!

Learn how the **TECHNOLOGY** being utilized in the landscape industry can improve efficiency and processes in **PEST MANAGEMENT BUSINESSES** as well. Everyone in the pest and lawn service industries are welcome!



Lawn & Landscape technology
conference

JULY 23 - 25, 2024 | SIGNIA BY HILTON ATLANTA | ATLANTA, GA

REGISTRATION NOW OPEN!

Visit LLTechConference.com for more information and to register!



/// continued from page 37

traffic circle island that they've converted into a pollinator garden. Other pest management companies support nonprofits that help victims of Lyme disease and oth-

er pest-borne illnesses. The opportunities to get your team involved in meaningful sustainability efforts are virtually endless.

"We have an opportunity as an industry to brand ourselves consistently for the important role we play in protecting not only



Kritter Caps®
STOP ATTIC PESTS!

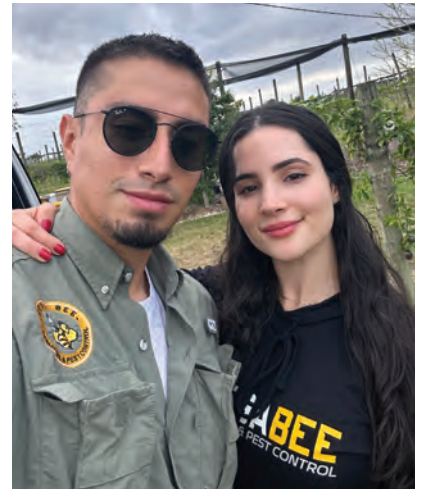
CORNER INSERTS
for
VINYL SIDED HOMES

MADE IN USA
PATENTED

*Easy to Install
*Won't Fall Out

www.KRITTERCAPS.com

KritterCaps® is a registered trademark of Stouffer Technologies, Inc. | © copyright 2022 Stouffer Technologies, Inc.



Mega Bee Rescues & Pest Control's Jean-loui Navarro pictured with girlfriend Anna Perez.

society but also the environment," Sked said. "The more we all do to participate in and promote environmentalism, the more people will recognize the good our industry does every day."

In Horgan's view, it comes down to the fact that pest management is always going to be a necessity, so the industry should show that it's doing things the right way, whether that's through conscientious treatments or giving back to the community.

"Generationally, I see that as we move forward, the younger people working for our company and others will want to use less and less material," Horgan said. "Buy-in from customers who also want to reduce the impact will continue to grow. When I was coming up in pest control, you'd walk in and a customer would say, 'Spray every baseboard.' Now they say, 'Do you have to come inside?'"

"We have a responsibility as progressive companies to use the best, most responsible products in the most sustainable way," he added. "As things keep changing — evolving technologies, better materials, less travel and greater willingness from customers to pay for sustainable solutions — companies unwilling to step up will get left behind. We all want to leave this place better than we found it." **PCT**

The author is a frequent contributor to PCT.



ARROW EXTERMINATORS

Join the Arrow Family

Family-owned and operated since 1964, Atlanta-based Arrow Exterminators has grown to become the 2nd largest family-owned pest control company in the United States. Arrow's highly trained team members are not only committed to protecting our Family Culture, but everyone's quality of life...and doing it all with a Clear Conscience.

Call today for your confidential conversation
Kevin Burns • 800-281-8978 • kburns@arrowexterminators.com
arrowexterminators.com/mergers



FOR OUR ***FUTURE***



You work hard every day to grow your business. Why? For yourself, for your family, for your colleagues, for your community — you know that your company's success will mean a better, brighter future for all those you care about. The Professional Pest Management Alliance (PPMA) agrees. For the past 25 years, PPMA has been steadfastly dedicated to growing, promoting, protecting and defending the professional pest control industry nationwide through consumer marketing and education programs. Working side-by-side with all kinds of businesses — from family-owned to corporations, suppliers to distributors, PPMA drives market growth today to ensure a strong and vibrant future for everyone tomorrow.

Father, Son and Grandson: Bobby, Bo and Robby • ABC Home and Commercial Services • Family-Owned & Established in 1949 • Serving the Austin, TX Area • A PPMA Guardian Supporter

WE CAN'T DO IT ALONE. WE NEED YOU. JOIN TODAY.
CONTACT JIM FREDERICKS AT PPMA@PESTWORLD.ORG

ServiceBoost serviceboost.tech

Saša's Milenković, founder of Pest Czar, Baltimore, Md., recently launched ServiceBoost, a software platform with tools customized for pest management professionals.

Milenković said he envisions a future where pest control operators can harness the full potential of their businesses. According to Milenković, ServiceBoost allows pest control professionals to elevate their online presence with custom branding and user-friendly websites; manage customer interactions through AI-powered communication tools; streamline operations, scheduling, payments and reporting; and boost online visibility, brand recognition and marketing efforts.

Spectrum 3D spectrum-3d.com

Spectrum 3D launched a new telescoping duster pole, Black Ops, designed for de-webbing and removing wasp nests. The



pole measures 18 feet fully extended and 5 feet collapsed.

The pole's push button clamps eliminate clamp and twist slipping, the company said, and the push button action makes for faster, easier operation for technicians on job sites. Each Black Ops ships in an oversized transport tube for daily transport and storage in service vehicles.



Arizona Chemical Group fipronil-plus-c.com

Arizona Chemical Group recently introduced Bifenthrin-Plus-C, a cellulose-based product that can be used as a barrier treatment for mosquitoes and other labeled flying and crawling insect pests.

The proprietary cellulose component pro-



tests the active ingredient in Bifenthrin-Plus-C from microbial and ultraviolet degradation, which enhances the efficacy and longevity of the product in the area where it was applied. This results in longer-lasting target pest control and reduced frequency in application, the manufacturer reported.

Neogen neogen.com



Designed for comfort and efficiency, Neogen's new SureKill Gel Bait Pro Applicator features a thumb-driven design, intended to reduce hand strain from repeated use, the company said.

Compatible with SureKill gel baits and most industry syringes, the applicator's adjustable dial offers five settings for gel output. Crafted with industry-grade plastic and steel, this lightweight-yet-durable tool allows users to target hard-to-reach areas while minimizing bait waste, Neogen said. **PCT**

The No. 1 resource for the structural pest control industry.

*IF YOU'RE LOOKING
TO TAKE YOUR
BUSINESS TO
NEW HEIGHTS,*

start by subscribing to our weekly newsletters, delivered to your inbox every Monday and Thursday. Each issue is filled with up-to-date industry news, videos and product information from our experienced editorial team.



SUBSCRIBE HERE ►



AMPLIFY YOUR BUSINESS

ARE YOU READY TO TURN UP THE VOLUME ON YOUR COMPANY AND YOUR CAREER?

The National Pest Management Association (NPMA) is your connection to industry-specific professional resources and services vital to you as a pest management professional. After over 90 years of helping industry professionals across the world, we know what our members need—and how we can help. Your business requires specialized support and resources so you can continue protecting public health, food, and property within the communities you serve.

JOIN NPMA AND...



EQUIP YOUR COMPANY— *with expert content featured in each issue of PestWorld Magazine and a robust website of resources including technical and business tools.*



PROTECT YOUR INDUSTRY— *NPMA's Public Policy team engages at the federal, state, and local level to advocate on behalf of the pest management industry.*



DEVELOP YOUR TEAM— *NPMA has online and in-person trainings for you and your employees and works to grant continuing education credits.*



GROW YOUR CUSTOMER BASE— *Your membership gives you a competitive edge in the marketplace with your company listing in NPMA's Find-A-Pro directory on pestworld.org.*



SAVE MONEY— *Receive discounts on fleet vehicle purchases as well as gas and fleet-management services, free HR consulting, member pricing and extra discounts for large groups on conference registrations, and essential services to run your business.*



BECOME A
MEMBER TODAY!

NPMApestworld.org/Join

 **NPMA**[®]
National Pest Management Association

CONTINUING EDUCATION

American Pest CEUs

...a national online continuing education course provider for the Pest Control Industry.



Look No Further!

- We offer over 50 low-priced courses on a variety of topics; insects, rodents, vertebrates, health & safety, environmental awareness, laws, IPM, fume, & more.
- Study guides available.

With **American Pest CEUs**, you can easily fulfill all of your continuing education needs at your convenience online!



Americanpestceus.com
844-673-7823
facebook.com/AmericanPestCEUs

INTEGRATED PEST MANAGEMENT



Trapper Jacks Is Back!
The Macadamia Nut Rodent Lure that PCOs have used for decades is back in production - nothing has changed! Made from natural food products, this "highly aromatic" lure can be used for baiting snap traps, glue boards, and live traps. Contains no pesticides or poisons!
Call (877) 201-6274
www.trapperjacks.com

BUSINESS OPPORTUNITIES

PROMOTE TO NEIGHBORS
LAWN NOTIFICATION
SIGNS
RND SIGNS.com
MARKETING, DESIGN & PRINT
800.328.4009

FOR SALE

FSBO: Well Established Myrtle Beach, SC Pest Control Company: \$600k Annual Revenue. Asking \$1 Million - Option to purchase: 4 Company Full Size Vans Fully Wrapped (\$150K Value), 4-Office Suite (\$150K Value).
Call/Text: 843-241-1263 - Mark

THINKING OF SELLING IN FLORIDA

We have buyers
Contact John Brogan
772-284-4127
Acquisition Experts, LLC



ACQUISITION EXPERTS LLC

PEST CONTROL COMPANIES FOR SALE

Over 25 years of pest industry support and closed deals.

S. Florida	SOLD	Gross: \$1.2 Million
FL East Coast		Gross: \$400,000
C. Florida	SOLD	Gross: \$1.7 Million
South Carolina		Gross: \$400,000
GA Coast		Gross: \$1.7 Million
S. Florida		Gross: \$600,000
Midwest	SOLD	Gross: \$2.6 Million
C. Florida	SOLD	Gross: \$1.1 Million
FL West Coast	SOLD	Gross: \$2.2 Million

Contact us for information about selling your business or to find opportunities in your area.

◀ All Conversations are Confidential ▶

Call 800-633-5153 or visit us at
www.preferredbusinessbrokers.com

Rand Hollon, Licensed Broker
Jay Hollon, Licensed Broker



Brokers ♦ Intermediaries ♦ Consultants

INTEGRATED PEST MANAGEMENT

STUF-FIT
(permanently)

Allen Special Products, Inc. • 800.848.6805

WERE YOU FEATURED IN THIS ISSUE OF PCT?

Article Reprint Service
(800) 456-0707

To place your classified, email mkelly@gie.net.

BUSINESS OPPORTUNITIES

THE AUST GROUP



MERGERS & ACQUISITIONS | CONSULTING | EXIT PLANNING STRATEGY

Thinking of selling your company?
Choose someone who has.



info@theaustgroup.com
theaustgroup.com
772.299.8534

PEST CONTROL COMPANIES FOR SALE
PEST CONTROL COMPANIES FOR SALE
SOFTWARE

Considering Selling Your Business?

"They helped us maximize our valuation far beyond expectations. They were professional, responsive, and worked very hard to navigate a very complex and difficult transaction. We were very blessed to not only achieve great results, but to make new lifelong friends along the way!"

-Todd Lamar
Owner of Pest & Termite Consultant



(407) 466-5859
KempAnderson.com
Kemp@KempAnderson.com



Small, progressive, reputable pest control company located in Connecticut for sale. Individually owned for over 30 years with long standing commercial contracts, all of which have signed on for an additional 3-5 years of service. Contracts have established IPM programs. The same one owner operator since the conception of this business is looking to retire. Owner is interested in staying on with the prospective buyer for at least a year or so to assist with relationship building for all contracts. Asking \$450,000. PCOAsale@yahoo.com

BILLMASTER Software®

Simple, Reliable, Affordable

Perfect for Small Business

Convert from any existing system

All at a price your business can afford

Call today to get started.

201-620-8566

Email: sales@billmaster.info

www.billmaster.info

SIGN UP FOR OUR E-NEWS

www.pctonline.com/subscribe



TAKE OUR WEEKLY ONLINE POLL www.pctonline.com/polls



MARCH /// Ad Index

Company Name Pg#	Company Name Pg#	Company Name Pg#	Company Name Pg#
Allergy Technologies.....51,58 www.allergytechnologies.com	Ensystex.....92 www.ensystex.com	Kritter Caps.....84 www.krittercaps.com	The Potomac Company.....29 www.potomacpest.com
AP&G Co.....17,35,63 www.catchmasterpro.com	Entomological Society of America...46 www.entsoc.org	Mattress Safe.....52 www.mattresssafe.com	PPMA.....85 www.pestworld.org
Arrow Exterminators.....84 www.arrowexterminators.com	Envu.....15,75 us.envu.com	MGK.....Insert,23,53 www.mgk.com	Rockwell Labs.....9,57,65,80 www.rockwelllabs.com
BASF.....2-3 www.pestcontrol.basf.us	Executive Pest Control.....36 www.execpcp.com	Neogen Corp.....16 www.neogenprofessionalpest.com	Rollins.....44 www.rollins.com
Bell Laboratories.....12-13 www.belllabs.com	FMC.....71,78 www.fmctruechampions.com	Nisus Corp.....5,20,37,45 www.nisuscorp.com	Senestech.....81 www.contrapestpro.com
Central Life Sciences.....7,11 www.zoecon.com	Forshaw.....27 www.forshaw.com	Nixalite.....74 www.nixalite.com	Skyhawk Trapmate.....34 www.skyhawk.ai
Conidiotec.....54-55 www.conidiotec.com	In2Care.....66-67 www.in2care.com	NPMA.....87 www.npmapestworld.org	Target Specialty Products.....31 www.target-specialty.com
Coxreels.....33 www.coxreels.com	InOvate Dryer Products.....22 www.defenderhood.com	Oldham Chemicals.....21,69 www.oldhamchem.com	UPFDA.....59 www.upfda.com
Crawlspace Depot.....18-19,40-41 www.crawlspace depot.com	Insects Limited.....79 www.insectslimited.com	PCO Supply Inc.....28 www.pcosupplyinc.com	Veseris.....91 www.veseris.com
Diversified Sales & Marketing.....30 www.divsales.com	JF Oakes Sales & Marketing.....33 www.jfoakes.com	Pest Control Insulation Systems..43 www.tapinsulation.com	Woodstream.....32 www.woodstream.com
EcoVenger.....50,73 www.ecovengerpro.com	Kemp Anderson.....14 www.kempanderson.com		



When not in use, the Firefly Flashlight mount can be stored at the base of a sprayer's hose.



PCO Don Nilan

Firefly
Universal
Wand
Flashlight
Mount



Firefly Universal Bait
Tube Flashlight Mount

Shining a Spotlight on an Application Issue



When Don Nilan, owner of Bayside Service, Shelton, Wash., would apply liquid pesticides using a tank and sprayer in dark areas, he kept encountering the same frustration. "I needed to use a flashlight to see where I was spraying, but I had my tank in one hand and the sprayer in the other," Nilan recalled.

The proverbial "lightbulb" went off in Nilan's head. *Let's figure out a way to outfit the tip of a sprayer wand with a small flashlight*, he thought. Nilan enlisted the assistance of George Burger, a friend who has a tool and die shop in Montana.

"George's response was, 'Have you seen how many flashlight mounts there are out there? To make something different is going to be very difficult,'" Nilan recalled. But Burger also was encouraged by some of the small

(and lightweight) flashlights that have recently been introduced and he saw potential in the idea.

In researching the market, Nilan did find another small flashlight mount, but it was not created specifically for tanks and sprayers. Nilan found it difficult to get this mount on and off. Also, because of where it is situated on the wand (at the elbow); he observed that it didn't direct light exactly where it was needed.

It took a few weeks of trial and error, but Nilan and Burger were able to create two different types of mounts to assist technicians: one for bait tubes (Firefly Universal Bait Tube Flashlight Mount) and another that attaches to the tip of a wand (Firefly Universal Wand Flashlight Mount). The wand mount has a double clip at the bottom, so it can be used on two different wand dimensions: 1/2-inch

or 3/8-inch diameter, which means it can be used for numerous types of sprayers.

"We had to work out a few kinks, but the mounts turned out great. Even with the battery, ours weighs an ounce or less, and you're not using it a lot, so the battery lasts forever," he said.

These mounts save time and keep technicians safer in their daily route work, Nilan said. Nilan said he has sold about 80 of the mounts to fellow PCOs in the Pacific Northwest and abroad, partnering with Connor Duffy of FlowZone, manufacturer of battery-powered sprayers, to help with distribution. Learn more about these products at Bayside Service's website https://www.baysideservice.net/flowzone_firefly_wand_bait_mount.html or contact Nilan at don@baysideservice.net. — Brad Harbison **PCT**



April showers, business blooms with Envu at Veseris.

April showers bring forth new possibilities for your business at Veseris, much like trusted favorites **Tempriid FX** and **Maxforce Impact**. Our team is thrilled to share how these solutions can elevate your business.

Explore our extensive Envu product portfolio at over 70 locations and on Veseris.com. Reach out to us with a simple phone call at **1-800-888-4897**. We're here to help make your April bloom with success.



SKUs 834022 & 834025

- Keeps bed bugs and other hard-to-eliminate pests at bay with a powerful, dual-active formula.
- A flexible label means you can control more insects in more places.
- Transfer effect means faster results for ants and other social insects.



SKU
811702

- Precisely designed for maintenance challenges with the power to knock down roaches quickly.
- Formulated for modern-day bait rotation strategies to combat aversion and prevent resistance.
- Outperforms competitors in mortality rates for cockroaches and secondary kills.



SCAN TO BUY!
IN STOCK AND READY TO SHIP!

The BITHOR special is back for 2024!

Purchase BITHOR **April 1 - August 31, 2024** to earn rewards ranging from flashlights to high-performance spray rigs!

ACCUTHOR Compressed Air Sprayer

- Pressure relief valve: no chemical spraying across top of tank!
- 4-way crack and crevice tip with holster on tank
- Stainless steel tank with no side seam
- Stainless steel pump barrel
- Stainless steel wand extension
- O-ring piston for smoother action and reduced friction
- Neoprene strainer with greater surface area (more durable and easier to clean)
- Sprayer includes complete soft parts repair kit

BITHOR SC Imidacloprid + Bifenthrin

The combination of Imidacloprid and Bifenthrin provides a one two punch to take out pyrethroid resistant insects like mosquitoes, bed bugs, flies, and cockroaches. In fact, BITHOR controls over 100 different pests!

Free with purchase of five BITHOR cases during promotion

Case purchases required



ensystex.com

• 888-398-3772

HOT SPOTS

Here are some popular hangouts for German cockroaches in multifamily housing units. Learn what to watch for — and how to show these unwelcome guests the door.

1

Unit with bed, bath, kitchen and living area:

- > Cockroaches may be brought in on groceries and boxes
- > Look for warm, damp areas, especially around appliances
- > Monitor with glue boards to find the ideal places to apply bait

2

Lobby:

- > Look for dropped food and water leaks
- > Check mail areas where packages are held
- > Use an IGR to help provide long-lasting residual protection

5

Laundry area:

- > Ensure filters are regularly cleaned and lint is removed
- > Bait behind washers
- > Look for wet clothing that has fallen between appliances

4

Storage units:

- > Remind residents not to store food in these areas
- > Watch for water leaks

3

Boiler room/electrical room:

- > Warmth and humidity make these areas ideal for cockroaches
- > Check for access points such as vents on electrical equipment
- > Use a bait as well as an IGR for electrical boxes that are hard to reach*



Scan to access a library of training videos.



LET'S SOLVE FOR THIS We're here and ready to help with whatever questions you have or pest challenges you face.

MGK.com



*Ensure product can be used around electrical equipment before use. Always read and follow the EPA-approved product label.

NOT IN OUR HOUSE

Pest management for multifamily housing

TIPS, TRICKS
AND PRODUCTS:
GERMAN
COCKROACHES

SEE INSIDE 



GAIN THE UPPER HAND

German cockroaches can be sneaky. Follow these tips to help locate and dominate the peskiest of pests.



INSPECTION



- > **Kitchen area:** Coffee makers, microwaves, instant pots, air fryers and other small appliances
- > **Bathroom areas:** Soaps, shampoos, toothpaste, cleaners and soy-based cleaners

BAITING



- > Target tight areas that are on edges, corners, small cracks and crevices
- > Remember to bait around indoor and outdoor recycling bins
- > Use enough bait to control the population, accounting for hidden cockroaches
- > Try a different bait with a new food matrix if cockroaches aren't eating
- > Rotate bait quarterly to combat bait aversion

SANITATION



- > Use a vacuum to remove cockroaches and their food sources at the same time
- > Enhance your treatment by prioritizing sanitation and giving customers one or two key tasks, such as doing dishes or sealing food packages every night

CREATE DISRUPTION

Insect growth regulators (IGRs) interrupt insect growth and development in the immature stages. This disruption results in the death of insects before they reach adulthood. Harness the power of IGRs to help provide more effective population control.

Treating proactively with an IGR helps prevent issues from developing, especially when cockroaches are in nearby units

Deformed, dead cockroaches are evidence of IGRs working

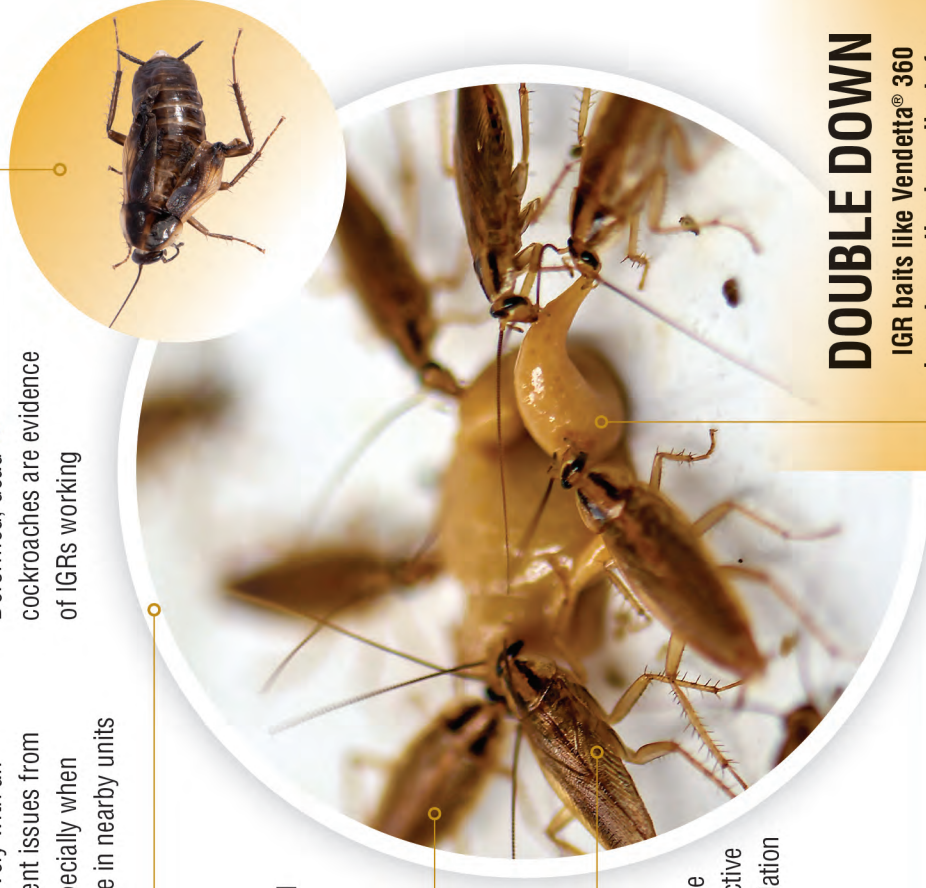
Baits are a great option in food areas since they can be near appliances without contacting food or food surfaces

If cockroaches are interrupted while feeding, IGRs can provide insurance by affecting reproductive ability and preventing the population from rebounding over time

The bait matrix and active ingredient should be rotated on a regular schedule

DOUBLE DOWN

IGR baits like Vendetta® 360 have two active ingredients for dual modes of action.



Always read and follow the EPA-approved product label.

GO FULL CIRCLE



Make cockroaches an offer they can't refuse. Rotate your bait with Vendetta® 360 to change up their cuisine and prevent them from becoming picky eaters.

Vendetta 360® features:

- > Newly available bait matrix
- > Easy syringe application that dispenses smoothly
- > No signal word
- > MyGuard® IGR for dual modes of action
- > A durable formula that stays solid in high heat

Learn more at [MGK.com/Vendetta](https://mgk.com/Vendetta)

