THE ALLIANCE QUARTERLY

Greater Chicago Pest
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Serving Pest Management Professionals Since 2004

2020

Fall Edition

PRESIDENT'S MESSAGE:

Star Date August 18th: First, I want to say that I hope every one of you, your family, and friends are healthy! Since we last talked, so many things have happened to our businesses, our cities, to our social networks, our school systems, and almost the entire fabric of our society. But with everything that has happened, there are a few things that are constant. People still have the ability to be incredible even in the face of seemingly insurmountable uncertainty and pests keep on keeping on.

I am writing this a day before GCPMA's first Virtual Seminar Series and have all fingers, toes, and eyes crossed that we don't face any technical issues. I hope that everyone who participated had a great experience and I look forward GCPMA rolling out monthly seminars for the rest of the year. If you have a particular speaker you'd like to hear, please email me. Although I miss all your shining and AWAKE faces during in person seminars, we still need to take the time and invest in our own knowledge, skills, and businesses.

Many of you are super busy and are having a great season. I just want to remind you to continue to be safe out there. Take the precautions necessary to protect yourself, your employees, and your customers. Continue to pivot and adapt your business so that you can come out the other side better than when you started. What markets can you enter that are less hit by the pandemic, what services can you render that you didn't before, what are your growth plans if your customers begin to close up shop? Start getting your plan together so that when fall and winter arrive, you are better prepared to weather that storm and muster the courage to do so.

Most importantly and in the immortal words of Bill and Ted, "Be Excellent to Each Other"!

Sara McGuire

INSIDE THIS ISSUE

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The WILD Life

BY JANE PEIFER, *Ampest Exterminating & Wildlife Control*

BLUE JAYS — the bird, not the baseball team'

I've had the pleasure of watching several blue jays hanging out outside our office looking for whole peanuts we feed to the squirrels. Blue Jays are one of the most recognizable birds in North America. You don't need to be expert to identify these colorful, loud, intelligent birds. I learned some interesting facts about Blue Jays while watching them up close and personal.

1 They actually aren't blue. The blue is just a trick of the light. For example, a Cardinal is red because its feathers have red pigment. Blue Jays have no such blue pigment. If you crush the feather of a Cardinal into a powder, it will be red. If you do the same with a Blue Jay's feather, the powder will be brown. Blue Jays (and all blue birds) use a trick called light scattering. When visible light strikes the feathers, all the colors pass through the feather except blue. The blue color is reflected so your eyes will see blue.

2 Male and female Blue Jays look the same. This is pretty rare in the bird world. Most species of birds have males and females that look different from each other. A few ways to tell them apart is the male is usually larger than a female. Their mating and courting behaviors will give them away as well. Blue Jays are often seen in courtship groups (typically 3 to 10 birds). In these groups, a single female determines the behavior of the surrounding males. For example, if the female begins to fly, the males follow. When the female lands, the group of males also land.

3 Once the female Blue Jay chooses her mate, they typically become monogamous mates for life.

4 Both male and females build the nest and rear the young. While the female is sitting on her eggs, the male will feed and take care of her. The tight family bond doesn't end there. The entire family will leave the nest and travel together once the young are around 17-21 days old.

5 The average age for a wild bird is typically 5-7 years. This number varies on the individual bird and environment. However, wild Blue Jays have been known to live up to 16 years. The oldest recorded Blue Jay lived 26 years. Most Blue Jays die from predators (hawks, raccoons, cats, etc.) or flying into a human-made object. In recent decades, the West Nile Virus has caused a significant decline in population.

6 Blue Jays are so smart they can imitate the sounds of hawks when they are spotted. The early alert protects many other birds from becoming lunch. Blue Jays also use the hawk sound to their advantage. Other birds will leave thinking a hawk is near so the Blue Jay is first in line to eat. Trust me, I've seen it firsthand observing the bird from my office window. They're basically bullies.

7 Blue Jays are very intelligent. They are a member of the Corvidae family, which includes ravens and crows, and consequentially, they are extremely intelligent. In fact, many scientists consider the Corvid family of birds to be the smartest animals on Earth.

8 The Blue Jay is not an official bird of any state in the United States. At least, they have a baseball team named after them even if it is in Toronto. Actually, the Philadelphia Phillies were once called the Blue Jays.

9 Blue Jays often store light colored flakes of paint. Paint flakes contain calcium which they need in their diet particularly for the females to ensure strong eggshells for their young. If Blue Jays are behaving like woodpeckers and stealing paint from your house, try putting out empty eggshells instead. They'll love you for it.

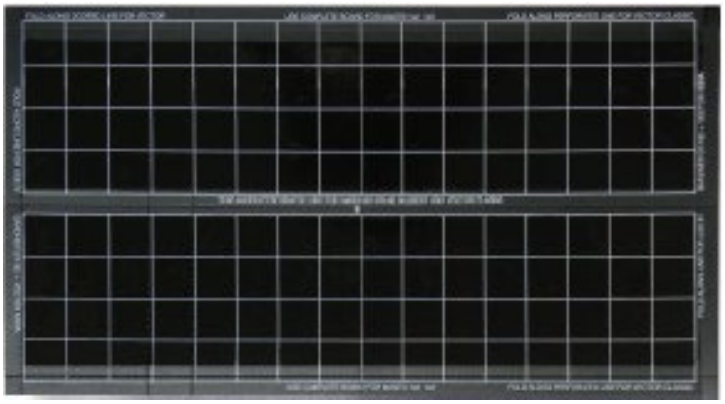
10 Their migration patterns are odd. Unlike other birds, Blue Jays do not have a predictable migration pattern. Often, they will stay in a habitat year-round. Then, out of the blue, they will decide to migrate and head south.

Love them or hate them, these birds are survivors, spurred on by their phenomenal intelligence. They can be loud and they can be bullies, but they are also beautiful creatures that deserve our respect and admiration.

PRO-PEST® REPLACEMENT FLY GLUE BOARDS OFFER MORE!

CONTRIBUTED BY *J. F. OAKES, LLC*

J. F. Oakes, LLC's Pro-Pest® Replacement Fly Glue Boards are manufactured on heavy stock and treated with a polyurethane finish & will fit 90% of UV lighted fly traps on the market.



Pro-Pest® Replacement Fly Glue Boards are moisture resistant and will not warp. The polyurethane coating protects the glue from being absorbed in the board, keeping the quality of the glue more consistent over a longer period of time. The glue board contrast, between the black surface and white grid lines, provide a more attractive surface for the fly to land on.

Pro-Pest® Replacement Fly Glue Boards reduces labor costs by reducing sticking on UV bulbs when replacing old boards. Pro-Pest® Replacement Fly Glue Boards are available in two sizes.

For more information, contact us at J. F. Oakes, LLC at 662-746-7276 or sales@jfoakes.com

'MURDER HORNETS': A COMMON CHALLENGE FOR US MILITARY PEST CONTROL WORKERS IN JAPAN

BY: SETH ROBSON, *STARS AND STRIPES – www.military.com*

YOKOTA AIR BASE, Japan — The U.S. military is urging its personnel in Japan to call pest control if they spot Asian giant hornets — also known as "murder hornets" — nesting near on-base housing.

Exterminators at the home of U.S. Forces Japan in western Tokyo have responded to several sightings of the deadly insects in recent weeks, said Staff Sgt. Vincent Sarver, 26, of Markleysburg, Pa., an entomologist with the 374th Civil Engineer Squadron.

The worlds largest hornets, which can grow up to two inches long and have relatively toxic venom, grabbed headlines recently after some were discovered in Washington state — the first sighting in North America.

In Japan, Asian giant hornets are a common challenge for military pest control workers. They kill about 40 people in the country each year, usually because the victim is hiking and cant get immediate medical treatment, Sarver said.

Yokotas entomologists respond to 50-70 calls about the pests each year. They wear beekeeping suits and use pool nets to remove nests and a chemical called "Wasp Freeze" to kill the hornets.

Known locally as "suzumebachi," the hornets are known for preying on honeybees, though theyre often killed by the bees when they enter their hives, Sarver said.

"Other types of bees they can kill quite easily," he said.

A sting from an Asian giant hornet releases a pheromone that attracts other hornets to attack the victim, Sarver said. Doctors treat victims with penicillin to stop an allergic reaction that causes inflammation and organ failure.

Staff Sgt. Vincent Sarver, an entomologist on Yokota Air Base in western Tokyo, holds two Asian giant hornet cacasses, May 18, 2020. (Theron Godbold/Stars and Stripes)

A few of the civilian pest control workers at Yokota have been stung, Sarver added.

"I'm sure it was horrible," he said.

Yokotas pest control office is home to a collection of Asian giant hornet nests, including one the size of a beach ball that was pulled off a tree branch near a rental cabin at Tama Hills Recreation Area, a U.S. military resort in Tokyo. Some smaller ones have been found near housing on Yokota.

The hornets typically hang their nests off branches, attach them to buildings or co-opt holes in trees. Nests can house between 100 and 500 hornets, Sarver said.

The insects are active from April and most aggressive from August until October, when they hibernate, he said.

"People are likely to be stung when they approach with a couple of feet of a nest," he warned.

SOURCE: *wwww.military.com/daily-news/2020/05/19/murder-hornets-common-challenge-us-military-pest-control-workers-japan.html*

PEST PREVENTION TIPS
FALL INVADERS

BY PATRICIA HOTTEL, *TECHNICAL DIRECTOR McCLOUD PEST SOLUTIONS*

One of the many ways that insects survive cold weather is to hibernate in void spaces of structures. They migrate towards buildings in search of an ideal warm resting spot to spend the cold winter. Changes in daylight hours and cooler temperatures can trigger the insect's indoor movements. Normally there is a single life stage, the adult stage, which moves indoors and they do not breed, feed or develop during the winter. They slow down their metabolism and wait for the arrival of spring. Examples of the most common insects which use this survival tactic include: multicolored Asian lady beetles, cluster fl ies, box elder bugs, brown marmorated stink bug and the Western conifer seed bug. These insects, just by their numbers can elevate beyond nuisance status, especially in sensitive environments like food production plants, pharmaceutical plants and health care facilities where insect contamination is a concern. Some can stain surfaces and create offensive odors in addition to being a nuisance and contamination threat.

THE INVADERS

BOX ELDER BUG

Probably the most common of the fall invading insects, this black and red marked bug actually feeds on trees including the box elder and maple. It is 1/2" long as an adult, mostly black in color with red lines marking the wings and the thorax or area behind the head.

CLUSTER FLY

There are several flies which will overwinter in structures. Cluster flies and face flies are the most common and tend to cause the most concern since they often appear in groups or clusters. The adult cluster fly is slightly larger than a house fly. The wings are held overlapping each other over the abdomen unlike the house fly which wings appear to be more of a triangular pattern when at rest. It has golden yellow hairs on the thorax or main middle section of the body. The immature stages are parasitic on earth worms and cause no structural harm.

BROWN MARMORATED STINK BUG

The brown marmorated stink bug is a relatively new invasive insect which has moved from its U.S. introduction point in eastern Pennsylvania westward. This is both an agricultural pest and structural pest. It can be identifi ed by its mottled brown color and shield like shape. Adults are about 5/8" in length and have lighter bands or stripes on the last segments of the antennae and around the exposed edges of the abdomen.

MULTI-COLORED ASIAN LADY BEETLE

These beetles get their name because they can vary in color and markings. The wing color can vary from tan to reddish orange and they can have a varied number of black spots on the wings. These insects are predaceous on soft bodied plant pests like aphids so have a valuable role in reducing agricultural and horticultural pests. They achieve pest status as they migrate indoors in the late fall months. They are sometimes called the Halloween beetle because they often come into structures around the time of Halloween on a sunny day after a frost.

FIRST LINE OF DEFENCE: SEALING, SWEEPS & SCREENS

Ideal temperatures for their overwintering locations are in the 40-50°F range which is typically found in the exterior wall voids or attic spaces of buildings. Denying the insects access for these ideal harborage sites is the first line of defense in control. Use of sealants, door sweeps and screens are the primary exclusion tools in preventing entry. The size of entry hole and degree to which sealing is needed will depend on the insect. The multicolored Asian lady beetle will fi t through openings

an 1/8" in size or larger. Sealing of all cracks in this width and use of normal window mesh screening will exclude most of the fall invaders. Door brushes and seals should also be in place. All sealing efforts must be made prior to the insect's indoor migration and so is typically conducted in the summer months. All of the invaders tend to migrate towards the sunnier sides of the structure and so special attention to sealing should be given to south, west and east exposures.

INSECTICIDAL CONTROL

Perimeter treatments with insecticides can be used to supplement exclusion efforts. The applications should be made to areas where the insects are resting and entering the building. New changes in pyrethroid insecticide (i.e. deltamethrin, cypermethrin, cyfl uthrin and lambda-cyhalothrin) labels may limit the ability to treat all areas with these products. More directed treatment may be required under the new labels. Pest management professionals may need special lifts or ladders to reach affected areas. If insecticidal treatments are performed, they should be scheduled at the time right before the insects are starting to enter the structure for optimal effectiveness. Insecticide treatments after they have entered the structure are of minimal help.

PHYSICAL REMOVAL

If the insects make their way unrestricted, insect light traps may be helpful in attracting and eliminating some of the insects which are not confined in ceiling or wall void spaces. Occasionally, a number of the invading insects will wind up in the occupied spaces of the building due to their point of entry or they may emerge in winter due to a temporary "January thaw" situation in belief that it is spring time. There is a new LED, battery operated light trap which can be useful in small areas for attracting insects. These temporary portable light traps are manufactured by Catchmaster.

Commercially available exterior pheromone traps have been used successfully in reducing brown marmorated stink bugs on the exterior. Care should be used in not placing them too close to the structure which might encourage interior migration.

Insects can also physically be removed through the use of vacuums. If vacuums are used, the contents should be discarded right after vacuuming, as some invaders like stink bugs can cause objectionable odors if left inside.

EXPECT THE UNEXPECTED: RESTAURANT PEST CONTROL TIPS DURING COVID-19

CONTRIBUTED BY *ZOËCON*

There's no doubt the restaurant industry looks completely different than it did even a few short months ago, and many changes implemented now will be long-lasting. Owner concerns about temporary re-closures, coupled with strengthening sanitation strategies means restaurants will need longer term insect control by using products that continue to work for months. The Zoëcon team reached out to some pest management customers to ask about the best ways professionals can work alongside restaurant clients to help effectively treat insect infestations, and prepare for the present and beyond.

Outdoor Dining Brings Outdoor Insects

With most states allowing larger capacity for outdoor dining than indoor, restaurants are re-opening patios or creating outdoor seating sections for the first time. Controlling insects outdoors presents a different set of challenges for restaurants and PMPs, and the higher volume of outdoor customers will increase the threat of insect activity. PMPs will need to consider treatment protocols for outdoor settings, and should work alongside their clients to educate them on the necessary steps they should be taking to clean consistently and visibly.

For Restaurant Owners and Staff — Exclusion and Sanitation Tips

Most PMPs we spoke with stressed the importance of routine sanitation and exclusion to prevent pest problems.

- Encourage owners to perform a deep steam cleaning of dumpsters and dumpster enclosures to lower house fly pressure.
- When situations call for an outdoor treatment during business hours, encourage your clients to consider essential oil based sprays.
- Make sure screens on windows and doors are intact to keep insects from coming inside. Restaurants should consider air curtains or other barriers to keep flies from coming inside.
- Give patio seating areas one last clean after closing to avoid attracting rodents and insects overnight.

For PMPs — Insect Control Tips

With many restaurants limited to only patio seating, now is the time for pest management professionals to come in and take care of the unique pest issues that these areas can create. The PMPs we spoke with cited ants and flies as their primary insect of concern for outdoor bars and restaurants.

- If the account hasn't been serviced in a while, re-inspect for insect activity. Chances are that roach, rodent, small fly and house fly populations have increased as restaurants opened back up.
- PMPs should assist owners in hanging fly traps in discreet locations around dining areas, and ensure that traps are downwind from customers.
- Treat dumpster and grease collection areas with an effective fly bait such as Musca-Cide® Fly Bait Spray. Remember to also treat popular fly resting spots where customers dine, including table legs, chair legs and planter boxes.

Indoor treatments will still be important as the kitchen can attract heavy insect activity, and some dining rooms are still open, even if at a limited capacity.

- This limited capacity presents a great opportunity to detail clean and treat seating booths and other indoor seating areas with a long-residual solution such as Gentrol® IGR Concentrate.
- Use Gentrol® Aerosol or Gentrol® Complete Aerosol as a crack-and-crevice treatment in the kitchen and indoor dining areas during every visit.
- While all of the PMPs recommended treating indoor areas on a monthly basis, the harsh realities facing the restaurant industry have forced several operational cuts. For some, this includes limiting treatments to a quarterly basis. For those restaurants only treating every three months, turn to the Gentrol® line of products for long residual control. The Gentrol® insect growth regulator, (S)-hydroprene, effectively breaks the insect life cycle and offers 120 days of control.

The Importance of Pest Control During COVID-19

The bar and restaurant industry has felt the weight of this challenging time as they experience different stages of closures, restrictions, or re-openings. Now more than ever, it is critical that owners and PMPs work together to achieve long-term insect control through a combination of sanitation protocols and products.

SAFETY ALERT:
AEROSOL CAN STORAGE & HANDLING

CONTRIBUTED BY *VESERIS*

WHAT HAPPENED:

One of our Lawn care customers in Texas shared that an employee stored an aerosol on the dashboard of their fleet truck over the weekend. As you can see, the aerosol container ruptured, becoming a projectile and went through the front window of the truck. The lesson learned is that aerosol cans are something that requires careful handling and storage practices.

TIPS FOR WORKING WITH AEROSOL CANS

Employees who handle aerosol cans should be aware of the general hazards of aerosol cans and the hazards associated with the specific ingredients. They should follow proper storage and disposal procedures, including:

- Aerosol cans are pressurized containers. Since high temperatures can increase the pressure in a can to the point of explosion, never store cans at temperatures above 120 degrees Fahrenheit (°F).
- Avoid exposing cans to open flames or such hazards as a stove, radiator, fireplace, or space heater.
- Puncturing cans causes a sudden release of pressure that can turn the can into an unguided missile.
- Incinerating a can, even if it is empty, risks explosion.
- Aerosol cans that contain hazardous ingredients are required to have a warning label. Ingredients are considered hazardous if they have one or more of these:
  - — Flammable — Toxic — Caustic
  - — Irritant — Sensitizer — Carcinogen
  - — Nerve toxin — Reproductive toxin

In addition to warnings of flammability and against puncture or incineration, other common warnings on aerosol cans include those of skin and eye irritation and accidental swallowing or inhaling.

STORING AEROSOL CANS

Under the Occupational Safety and Health Administration's (OSHA) standard for flammable liquids, a flammable aerosol is any nonrefillable container containing a compressed,

liquefied, or dissolved flammable gas under pressure with a release device that ejects the contents as particles in suspension and emits a foam, paste, powder, liquid, or gas. The definition does not include flammable components that are pyrophoric, self-heating, or waterreactive chemicals. Flammable aerosols are Category 1 liquids (of four categories), which have a flashpoint below 73.4°F and a boiling point of 95°F or lower.

Note: *The "flashpoint" is the lowest temperature at which a liquid gives off a vapor in enough concentration that it can be ignited when mixed with air near the surface of the liquid. A lower flashpoint means higher flammability.*

Flammable liquids in containers of 60 gallons or less of flammable liquids (including flammable aerosol cans, paint thinners, etc.) must be kept in a fire-resistant storage cabinet, inside storage room rated for fire resistance or as authorized by local regulators.

Category 1 liquids may not be handled where vapors could encounter an ignition source. "No Smoking" signs must be conspicuously posted.

CHECK THE SDS

Employees should be trained and encouraged to check the safety data sheet (SDS) for handling and storage information specific to the aerosol that are using.

WE ARE SERIOUS ABOUT SAFETY!

SAFETY ALERT:
CAREFUL USE OF NUVAN STRIPS

For anyone unfamiliar, dichlorvos is the active ingredient in (among other products) **Nuvan™ Prostrips™**, a slow release pesticide formulation for control of bed bugs, "flies, gnats, mosquitoes, moths, silverfish, cockroaches, spiders, beetles, earwigs and other pests". Dichlorvos looked like it might have seen the last of its days a few years back, at least partly because of its acute toxicity. It is a holdover from the era of organophosphate insecticides, and like all OPs, it acts as an acetylcholinesterase inhibitor. But dichlorvos has a unique property: its relatively high volatility makes it useful as a fumigant. And thanks to its effectiveness against bed bugs, dichlorvos now appears to be staging a comeback.

Dichlorvos kills pyrethroid-resistant bed bugs. But it can also hurt people if not used carefully as described in the label. The CDC study reports on 31 acute DDVP pest strip–related illness cases recorded from seven U.S. states and Canada from 2000 to 2013 (more cases undoubtedly occurred that were not part of this study). Most of the illnesses resulted from using the product in commonly occupied living areas (e.g., kitchens and bedrooms), in violation of label directions. According to the report, "Although 26 of the 31 cases involved mild health effects of short duration, five persons had moderate health effects." Illnesses included neurological, respiratory and gastrointestinal symptoms. Effects due to dichlorvos overexposure usually resolve themselves completely, according to the study; but make no mistake—this insecticide should be used with care.

The report concludes that in order to prevent dichlorvos-related illnesses, the public should be educated on correct use of pest strips, and how to control insect pests using safer pest control methods. I would add that it's important for professionals to be reminded of the safe use of these products and the importance of reading the fine print on dichlorvos labels.

Some key label points to remember about Nuvan and similar strips:

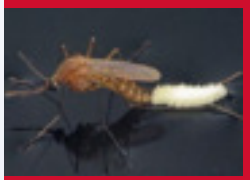
- Do not over-apply. One 16 gm strip is sufficient for treating 100 to 200 cubic feet. Having said that, do your technicians know how to estimate cubic feet? A typical 6' by 12' by 8' walk-in closet is approximately 575 cubic feet (a simple multiplication of length x width x height) and would require 3 to 5 strips—6 would be an over-application.
- Around the home, strips may only be used in closets, wardrobes and cupboards, storage units, garages, attics or crawl spaces. Other sites outside the house are also listed on the label.
- Do not use in kitchens or food prep or storage areas where unwrapped food may be exposed. Kitchen utensils should not contact the strips.
- Pets and children should not play or sleep where strips are in use, nor should the strips be used in any room where humans are likely to spend more than four hours a day. An important sidenote here: most of the illnesses (65%) reported in the CDC paper occurred when exposures exceeded four hours per day.

If you or your technician encounters a customer using dichlorvos strips, you owe it them to make sure they understand the risk of the product and use it only after carefully reading and following the label.

MOSQUITO SHOW & TELL

BY STANTON E. COPE, PHD

A northern house mosquito (culex pipiens) taking a blood meal. This species is the primary vector of West Nile Virus in the Chicago area.



Culex pipiens female laying her egg raft. Up to 300 eggs can be produced after one blood meal. The eggs are white when first laid, then darken in a few hours. They hatch in 2-3 days.

Typical outbuilding that female mosquitoes may overwinter in. These types of 'prefab' structures often have numerous gaps and openings where mosquitoes can easily enter.

TIPS ON RETAINING CUSTOMERS THROUGH THE END OF MOSQUITO SEASON

BY STANTON E. COPE, PHD, *VP, Technical Products and Services, Catchmaster; Captain (Retired), United States Navy; Past President, American Mosquito Control Association (2015-16)*

As the summer winds down here in the Greater Chicagoland area and cooler temperatures arrive, mosquito activity will decrease, as it does each year. If your customers are not seeing many mosquitoes, they may decide 'hey, let's save a few bucks and cancel that last mosquito service or two. We can use the money for a weekend getaway instead'. This is a bad idea for a number of reasons and you and your team need to be able to explain WHY or you may lose revenue.

DIAPAUSE – WHAT IS IT?

As the daylight grows shorter, mosquitoes (and many other species) prepare to enter something called 'diapause'. My unabridged dictionary defines it as "a period of hormonally controlled quiescence, especially in immature insects, characterized by cessation of growth and reduction of metabolic activity, often occurring seasonally or when environmental conditions are unfavorable". Whew! That's a mouthful, especially when trying to communicate with your customers. Well, being a simple guy from Indiana, I carved out this definition; "a resting stage, triggered by the environment, when bodily functions are shut down or greatly reduced". They don't quite go to sleep but almost!

Diapause is a complicated and sophisticated process, with many biochemical, physiological, and environmental factors at play. Think of it as a state of dormancy that provides a mechanism for female mosquitoes to bridge unfavorable seasons, or to 'overwinter'. Some species do this in the egg stage, some in the larval stage, and some in the adult stage. However, the life stage when diapause occurs is species-specific. For example, the Northern house mosquito, Culex pipiens, overwinters in the adult stage while the Eastern tree hole mosquito, Aedes triseriatus, does so in the egg stage.

Diapause results in increased tolerances to adverse environmental conditions, especially temperature, as well as lowered energy demands. Finally, in preparation for diapause, female mosquitoes will seek shelter in highly protected spots, change their feeding preference from blood to nectar in order to build up essential nutrients, and alter their egg-laying habits.

TALKING POINTS AND TIPS

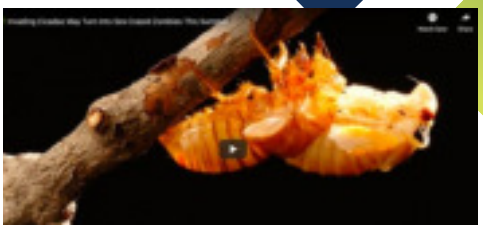
Inevitably, some customers will contact you about cancelling the last service or two, looking for that cost savings. How do you, as a technician, service manager or owner/operator convince them that they should not do this? **Here are six talking points and tips (bolded) and some comments to assist you in your efforts.**

- **Diapause is a mechanism that helps mosquito populations maintain a presence in an area and spread the next season.** The 'seed' population is already present so mosquitoes don't need to fly in or be transported in.
- **Even if a female mosquito has entered diapause, if the weather suddenly warms up in the fall, she may become active and seek a blood meal.** We have all experienced what was known as 'Indian Summer' when I was a kid; that sudden hot spell in October, or rarely November, and a week later there is snow on the ground!
- **Human pathogens, particularly viruses such as West Nile and Eastern equine encephalomyelitis, will overwinter in diapausing female mosquitoes.** This phenomenon facilitates the build up of these viruses in the spring bird populations, which can result in more human cases in a particular area.
- **Killing diapausing female mosquitoes will help reduce population numbers at the start of the next season.** This may seem intuitive but remind your customers that one female Culex pipiens can lay up to 300 eggs, so the spring populations are going to build up faster with diapausing mosquitoes around to contribute.
- **Overwintering harborages used by mosquitoes may be different than those used during the regular mosquito season.** As mentioned above, mosquitoes entering diapause will seek protected shelters such as under sheds; in cellars with exterior doors; outbuildings; crawlspaces; window wells; vents; and animal burrows.
- **Finally, emphasize to your customers that your end-of-season services will specifically target these potential overwintering sites.** Explain that you normally treat vegetation and other potential resting sites but that you will focus on these overwintering sites, many of which we may not treat during the peak season.

Dr. Cope, AKA 'Captain Stan The Mosquito Man', can be reached at scope@catchmaster.com. You can also find lots of useful information and infographics on mosquitoes and general pest control at *catchmaster.com/tag/captain-stan/*

INTERESTING READ:
INVADING CICADAS MAY TURN INTO SEX-CRAZED ZOMBIES THIS SUMMER

BY KATHERINE TUTRONEL, *www.vice.com*



Millions of cicadas are making a joyous debut after 17 years underground — except those whose butts and genitals have been eaten by a fungus.

The cicada summer is here. Millions of periodic cicadas are emerging across Virginia, West Virginia and North Carolina after hibernating underground for 17 years. They've missed everything from the creation of YouTube to Trump being elected.

The cicadas' unique life cycle comes as a means of "predator avoidance." Scientists theorize cicadas spend a prime number of years underground, 13 or 17 years, depending on the species, to avoid synching up with predators. Then by descending in unison, the millions of clumsy, defenseless cicadas can overwhelm predators and stand a chance of survival.

But this year's cicadas have an even bigger thing to worry about above surface: a hallucinogenic fungus that turns them into sex-crazed zombies. This fungus, called Massospora cicadina, invades the cicada and causes its abdomen to slide off. The cicadas enter a zombie-like state, driven to mate with anything they can find. But their efforts are fruitless, because the fungus has eaten away their butts and genitals.

The fungus acts much like an STD, where spores scatter as cicadas wiggle their infected bodies during their sex rampage. One West Virginia University researcher describes them as "flying saltshakers of death."

This phenomenon has been going on for generations, but only last year did researchers from West Virginia

University discover the chemical mechanisms driving the zombie takeover: cathinone, an amphetamine referred to as "bath salts," and psilocybin, the psychoactive compound in magic mushrooms.

This was a breakthrough discovery of psilocybin in any fungi other than mushrooms.

Understanding how these compounds, only found commonly in plants, are able to exist in an insect could provide a pathway for developing drugs for humans. Psilocybin in particular is pivotal in research to treat mental health conditions including PTSD and depression.

Fortunately, there have not been any reports of zombie cicadas yet. But if you are so tempted to inspect the bums of cicadas and happen to be in the Mid-Atlantic over the next month, just follow the sound of a lawnmower.

Watch the video here: *www.vice.com/en_us/article/xg8gwz/invading-cicadas-may-turn-into-sex-crazed-zombies-this-summer*

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