

PESTPRO

From Pest Management Education, Inc. to Landscape and Pest Managers

**Bed Bugs and
Other Pest Bugs
Are Survivors**

**An Unintended
Consequence
Of the Pandemic**





2023 FPMA LEGISLATIVE DAYS

April 3-4 2023

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Monday, April 3

- 8 am - 12 pm Executive Committee Meeting
- 1 pm - 3 pm The Capitol and You
- 3 pm - 4 pm Missy Timmins Capitol Tour
- 4 pm - 5 pm Mixer at the Governor's Club
- 6:30 pm - 8:30 pm Welcome Reception

Tuesday, April 4

- 8 am - 10 am Breakfast Briefing
- 10 am - 3 pm Capitol Appointments
- 10 am - 3 pm Optional DACS Lab Tour
- 6 pm - 9 pm Tuesday Night Supper

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Peter K Burian

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ON THE COVER

A robber fly on its perch watches for its next meal. North America has nearly 1,000 species of robber flies, with more than 100 species occurring in Florida. These true flies prey on wasps, bees, dragonflies, grasshoppers, other flies, and some spiders.

Photo by Thomas Chouvenec



FPMA Still Leads the Way

IT WAS a true honor in January to be inducted as your new president of Florida Pest Management Association. Making it even more meaningful to me is the fact that serving this great association has been a tradition and legacy for my family as both my father, Brendan E. Cavanagh, and my grandfather, Henry C. Petri, were past presidents of FPMA.

EXPO was a great success again! Our appreciation and recognition go out to our conference co-chairs, Todd Himelberger (Syngenta) and John Perry (Greene County Fertilizer), and to Charlene Mertz (Nisus) for taking time out of their busy schedules to meet weekly and provide the valuable input we need to continue to fine-tune our event.

TECH Days continues to be a high point of our event. I want to thank Andrew de la Chapelle, Steve Mock, and our Education Committee for their hard work in creating and executing this unique and innovative program that has captured the interest of so many who attended. I would also like to thank Kurt Anderson of Pest Pro University for sponsoring TECH Days, which was a natural fit, as both TECH Days and Pest Pro University have the same focus and mission, which is to better prepare and train our technicians and ultimately raise the level of professionalism in our industry. Kurt and his crew will be helping us with a video showcasing the event, so stay tuned!

I was greatly encouraged and excited to have the opportunity to meet with our newly elected Executive Committee, Board of Directors, and Committee Chairs at EXPO and to have our first meeting of the Board of Directors. With the collaboration of all, new ideas have emerged on how to increase membership and membership participation. We are currently in the early stages of coordinating our effort with both the Membership and Education committees and you will start to see our strategy unfold in the weeks ahead. Different types of Regional Meetings and new value-added benefits are just two of the changes and improvements in the works.

Legislative Days

Every two years, FPMA makes the pest control industry's voice heard in Tallahassee at Legislative Days, scheduled for April 3–4, 2023. A special thanks goes out to our lobbyist, Missy Timmins, and to Sean Brantley and Suzanne Graham, who co-chair FPMA's Government Affairs Committee, for all their planning and coordinating efforts. This will be FPMA's first post-pandemic Legislative Days and the first year our registrants will be armed with information supported by FPMA's Economic Impact Study. The results confirm that the pest control industry is important to the state in terms of its economic contribution (\$2.7 billion in industry output) and job generation (26,000 full- and part-time jobs).

If you haven't participated in FPMA Legislative Days, I urge you to sign up! What goes on in Tallahassee affects you and your business every day. You owe it to yourself to be informed on how it works and how FPMA stands up for your interests throughout the legislative process.

Summer Conference

Mark your calendar to attend our FPMA in Paradise Summer Conference, June 12–14, at the Marriott Harbor Beach Resort and Spa in Ft. Lauderdale. Business sessions, networking and a chance to reconnect with vendors are in the mix — all in a family-friendly environment designed for summer fun!

Meeting the Challenges

Finally, I as president and we as an association understand that there are challenges our association must face and deal with, such as consolidation of companies, competing interests and associations, and a changing business environment. Our job is to adapt and improve in ways that 1) meet the diverse needs of our current membership base, 2) stimulate membership growth, and 3) allow us to continue to serve the interests of the pest control industry in Florida as an independent state association.

With your help and support and the dedication of all those willing to serve our industry, we are excited and ready to take on these challenges! **PP**

*Chris Cavanagh
President, FPMA*

Visit flpma.org for currently scheduled meetings and more.

Sales Are the Key to Pest Control Business Success

SALES of pest control service in Florida is completely different from sales in other industries. Every effective salesperson needs to have knowledge of the products available for purchase. In the Florida pest control industry, the person doing the sales must have an ID card issued by FDACS, be trained, and work under the direct supervision of a certified operator. This includes every person who would sign up new or existing customers to a service or agreement. For instance, your most effective salesperson may be the person assigned to answering the phone and talking to potential customers.

I remember years ago that a woman hired to answer the phone for a large pest control company took it on herself to go out during her lunch hour to sell pest control services, even though that was not her job. She even spent her evenings talking to potential clients. The company was able to track her sales so she could be rewarded. She was so successful that her branch of the large company grew faster than any of the other branches. Her success was recognized. The company rewarded her by naming her vice president of human resources. She could recognize people who would be good at sales and service and was better than anyone at recognizing key personality traits.

How do you think she was able to accomplish those amazing sales when others at her branch of the company were not as successful? It all started with her learning about the services that the company delivered and the benefits for customers who purchased those services.

Training Brings Sales Success

Her education in pest control began with the minimum requirements of the law: five days of training for all new pest control employees, even the sales staff. The first five days on the job included field training, to see the service being delivered.

Field training usually means riding along with an experienced technician who provides service to clients. Without that experience, no salesperson will be able to explain the service that is provided. The field training should excite the new sales employee about the benefits the service provides. The training interaction with

the certified operator and the service technician is critical to understanding how the company operates.

Associated with the field training, the new employee should receive safety training information. This will show them that a homeowner is not able to provide self-service as safely and efficiently as the company can provide.

Do you know that most child pesticide poisonings are due to improper storage of pesticides in the home? People can go to the big box stores or online and buy many pesticides that are available to the pest control industry, but they usually have a surplus of chemical that they store under the sink or in the garage. Children get into those supplies and, unfortunately, experience poisonings from ingesting and getting them on their skin or into their eyes. That can be avoided by using a pest control service. The technician goes to the property, applies the product according to label instructions, and leaves with any excess product securely stored on the service vehicle. The safety of this service is unsurpassed and needs to be shared with potential customers.

The law does not stop with the initial five-day training program for a new salesperson. Every year, all sales employees must receive two hours of documented training to update them on new or modified services for new pest problems. This would be a time for training on pest biology and the company's current methods used for control.

Pest control is unique, because pests and their control techniques change rapidly over time. In fact, it is probably more challenging than the high-tech industries. That means a good company has to adapt rapidly to new pest problems, new insecticides, new formulations of product, and new equipment for treatment. Even though pest control is not a tech industry, it is a tech-driven industry. The ability to do routing, keep records, go paperless for clients, and even remotely detect pest presence, means that everyone needs to be current on training and materials. It is a never-ending process of training and implementation of newer methods.

When I think of change and training for current situations, I think of the invasive pests and the shift in pest prevalence over the years. Termites and termite control have drastically changed over the years. Formosan termites, and now Asian termites, are new pests that require a change in procedures to obtain control — perhaps a change from soil treatment to bait treatment. Your salespeople need to know the process and advantages of each control method in order to explain the company's method of controlling termite infestations.

When I think of GHP pests, I think of how the Asian cockroach — almost identical to the German cockroach in appearance — has changed the way companies need to communicate with their customers. The German cockroach is found indoors, while the Asian cockroach is found outdoors but sometimes invades buildings. The methods of control are entirely different, and the places where treatment occurs is of tremendous importance.

Investing in Salespeople

It is the salespeople in the company who are going to either make or break the company. They have to be invested in the future of the company by making a contribution of meaningful sales on a daily basis. Potential customers usually have made up their minds about their interest in purchasing pest control before they contact the salesperson. The salesperson is key to setting expectations so you will end up with a satisfied customer in the end. A knowledgeable sales staff is an investment in the future.

What can be done to keep salespeople trained and motivated? You should think about providing them with copies of *PestPro* magazine. The articles are mainly from the University of Florida and are written to provide good guidance on pest management. Also, think about having sales staff attend TECH Days at FPMA's EXPO. It is a great way to improve their knowledge and get practical experience in new methods of pest management. It is also a path to pest control business success! **PP**

— Dr. Philip Koehler,
Managing Director, *PestPro*

An Unintended Consequence Of the Pandemic

Thomas Chouenc



Syrphid fly



MACROPHOTOGRAPHY

Photos by Thomas Chouvinc

THE PAST three years were nothing normal. As we finally find ourselves in some recovered sense of normalcy, the pandemic has taken a toll on many of us in many different ways.

For me, the lockdown prevented me from properly attending the termite colonies reared in my lab at the Ft. Lauderdale Research and Education Center, which led to an invaluable loss of research materials, stressed colonies, and experiments that had to be restarted from the beginning. As a researcher, such a setback can hit hard our ability to move science forward.

However, during the early months of the 2020 lockdown, I was fortunate to be able to spend quality time with my family. Out of a worldwide catastrophe, I found myself with some available time to rediscover some forgotten hobbies. Conveniently, such hobbies happened to overlap with some aspects of my work.

More than a decade ago, I dabbled with macrophotography, as I was curious about the techniques required to take quality photographs of small insects. As an entomologist, being able to catch a live insect

in action not only entertains the curiosity, but it also provides a degrees of personal satisfaction that is extremely rewarding.

Unfortunately, I never was able to fully dedicate myself to the craft of insect macrophotography and became mediocre at it, at best. As time became a rare commodity, cameras and lenses were shelved to accumulate dust.

However, with the pandemic lockdown, I was now unexpectedly spending time in the yard with my kid, casually looking at whatever bugs would show up. The desire to turn the pandemic lockdown into a side project of documenting the entomological fauna of my backyard took shape. I therefore went down the rabbit hole of the Internet insect macrophotography community, to dust off my skills and my gear. I had to rediscover techniques and tricks and figure out solutions to problems unique to insect macrophotography.

The learning curve was steep at the beginning. I had to relearn how to use camera and lenses properly, how to provide the right type of light for the subject, how to approach different insects, and how to adjust my setup to each unique situation.

Continued on next page



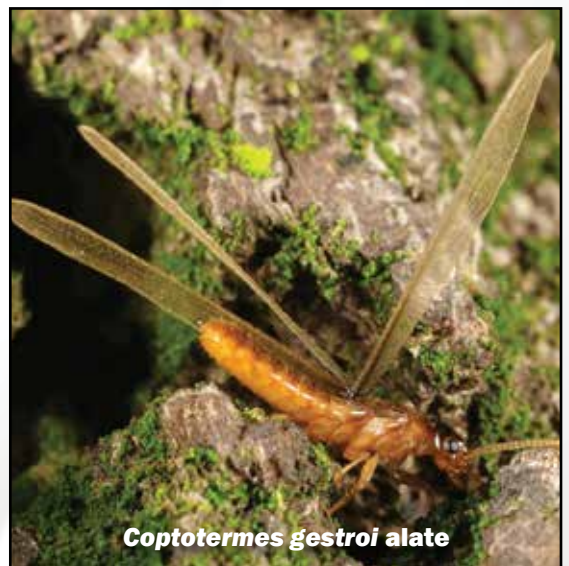
Neoterme castaneus soldier



Coptotermes formosanus king



Coptotermes formosanus soldier



Coptotermes gestroi alate



Fly



Geiger beetle



Jumping spider

All insect photos by
Thomas Chouenc

ULTIMATELY, patience became the most important skill to improve my ability to take bug shots. Within the first few months of the lockdown, I was able to obtain insect images that surpassed my previous abilities, and it motivated me to improve my skills further. As I went back to work in the lab, I continued to work on my techniques and went further, customizing some of the technical limitations to approach my favorite subject: termites.

I learned the hard way that taking pictures of insects in a lab setup is a far different experience and imposes different sets of challenges than field macrophotography. It's like learning how to use two smartphones with different operating systems. While a good lens is important for the quality of the image, the composition and the overall image rendering ultimately depends on the light available during the shot. For field macrophotography, customized flash and light diffusers are key to bypass many of the limitations, while taking into account an ergonomic ease of use of the whole gear setup. For laboratory pictures, I had to come up with a proper customized light box, since the light setup can be decoupled from the camera.

As a result, in the past three years I was able to continue improving my skills. While I am still nowhere close to some of the amazing insect photographers out there, I reached a point where I am content for my own self-satisfaction but now, some of these pictures are also good enough to use for scientific and Extension publications to illustrate some of my work.

In retrospect, I probably would never have found the time to get back to macrophotography without the imposed lockdown. It is rather ironic that I was forced to slow down to find the time to be better at something.

Now I use my camera to take pictures of insects on a daily basis, and I forgot the time when I was not doing it. I find this hobby soothing, rewarding, and in the context of work, very useful to properly document the science we do in the termite lab.

Finally, it occurred to me that macrophotography can have a purpose within the blurred zone between science and art, reminding me that, in hindsight, I should have stuck with the hobby in the first place. **PP**

Dr. Thomas Chouenc is Assistant Professor in Urban Entomology at the Ft. Lauderdale Research and Education Center of the University of Florida Institute of Food and Agricultural Sciences.



Earwig

Bed Bugs and other Pest Bugs are SURVIVORS

Roberto Pereira



SPRAY



BREED



SPRAY



BREED



ENTIRE POPULATION IS RESISTANT TO BUG SPRAY



RESISTANT TO BUG SPRAY



SUSCEPTIBLE TO BUG SPRAY

HOW DOES PESTICIDE RESISTANCE OCCUR?

IN PEST CONTROL, we should not be surprised when the bugs we want to kill end up *not* getting killed by whatever we throw at them. There are many reasons for that, including our own actions that make the pests we seek to destroy even harder to destroy. Throughout history, the bugs we tried the hardest to get rid of are the ones that we *still* try to kill, and will probably try to kill for some time to come.

Meanwhile, some insect populations that were never the object of massive control programs may have disappeared, simply because they were not able to adapt to a world of chemical pesticides and structured pest control programs.



Bug spray has little to no effect on resistant individuals like this!

Part of this paradox, where the most “controlled” insects are the ones surviving, is simply due to the creation of so-called superbugs that are resistant to different classes of pesticides or different means of control. The process is simple: As we kill some insects, the ones that survive are the ones that are simply lucky. They were not exposed to the control methods we employed, or they have learned or developed a mechanism that allows them to avoid death. They *survive*.

Selecting for Survival

The mechanism that leads to survival can be as simple as normal insect behavior. For instance, if you consistently go on a wild spree, killing cockroaches with your sandals

during the two hours after dinner, you eliminate the roaches that come out into the open at that time of the day. But you will not harm the cockroaches that normally take a nap after dinner and venture out into the open only after 10 P.M. Survival favors those insects that like to come out of their nest later in the evening.

In this example, the control method is mechanical, and that is the same mechanism that leads to insecticide-resistant insect populations. As we kill and eliminate insects that are susceptible to a given form of control, the survivors will be the ones that either do not get exposed to that form of control or that can withstand that form of control without suffering any harm. *Continued on next page*

Summer in the mountains



Adapting for Survival

The bed bug is a good example of a bug that can adapt to different conditions. Bed bugs' specialty is surviving long periods without food. Colonies have been known to survive for several months without feeding. Dr. Dini Miller, in her research at Virginia Tech, showed that some bed bugs may survive starvation for several months.

I like to tell the story of two populations of bed bugs living in two different cages: one at the beach and one in the mountains. The bed bugs in the mountains feed on humans during the summer, when the humans move up the mountains to escape the summer heat. The bedbugs in the beach cage feed on the humans during the winter, when the temperatures by the shore are much warmer than on the mountains, and the humans come down to enjoy warmer weather.

Both bed bug populations survive in spite of relatively long periods of starvation. The adaptation needed in both populations is the ability to survive long periods without feeding. That is an important adaptation that has served the bed bug populations well over eons and that allows bedbugs to last in an environment where no host is available for a while. When blood becomes available again with the arrival of a host, the bed bug population can grow very quickly.

Winter at the shore



Pesticide Resistance

Another characteristic of many bed bug populations is the fact that some populations are resistant to certain classes of pesticides. Repeated contact with these pesticides eliminates the insects that cannot deal with those products and are killed.

The survivors are the insects that either avoid the pesticide because of some peculiarity in their behavior or because they are able to avoid effects of the pesticide, perhaps due to physiological processes. Either way, the survivors are bed bugs that somehow avoid death even when pesticide is in the environment.

As we interact with different populations of insects, you can be sure that the actions we take against one population or another will modify the trajectory of these populations. These actions end up influencing what the insect populations can withstand in the future, and determine the level of difficulty we will have in controlling the pests.

However, there are limits to a living population on how much they can adapt to any given challenge. For instance, researchers have tried and failed to improve heat tolerance beyond a certain point for bed bugs. The

reason for that is that, no matter how hard we may try, certain physiological processes cannot occur outside of predetermined conditions. Try to keep an ice cube from melting into water outside a refrigerator!

No matter what we do, the laws of nature still apply to insect populations everywhere. Bed bugs and every other insect species are susceptible to some form of insect control. Whether that form of control is one that will become available to the pest control industry depends, among other factors, on the good stewardship we exercise in using the tools we have available now.

Pesticide resistance in different insect species has been a problem ever since synthetic pesticides became widely used. There seems to be no limits to pesticide resistance.

A ranking of the top 20 resistant arthropods, put together by Dr. Mark Whalon and Dr. David Mota-Sanchez in the *Arthropods Resistant to Pesticides Database (ARPD)*, includes the six urban pest species listed in the table below — and the bed bug is not one of them.

Of the urban pests on the list, the house fly is at the top, with a mention of 62 pesticidal active ingredients to which the fly is resistant.

Bed bugs are not mentioned on the list, but the tropical bed bug, which we do not seem to have a problem with here in the United States, has been reported in other research to show resistance to at least nine active ingredients. The common bed bug, which we do have in the United States, is reported to be resistant to 19 active ingredients.

So, the problem of insects adapting to an environment in which we apply pesticides is not new. Humans have been instrumental in creating tougher populations of bed bugs that cannot be killed by certain chemicals.

Keeping Bugs Susceptible To Pesticide Treatments

Yes, sometimes we create tougher bugs as we go about controlling them! We certainly do not need tougher bugs, so avoiding pesticide resistance should be on every PCO's mind.

A pest control program that switches active ingredients at regular intervals is the easiest way to prevent pesticide resistance. Then, if we throw in some other control methods that do not involve pesticides, such as traps, environmental modifications, and others, we can delay or completely avoid pesticide resistance in pest populations.

In the case of bed bugs, heat treatments provide a break from traditional pesticide applications. Other methods of control, including a biological pesticide alternative and traps of different forms and sizes, are some of the alternative methods that can be implemented successfully.

Outwitting the Survivors

When we look at urban pests and their distribution around the world, it is easy to understand how versatile these pests are. They adapt to varying construction styles. They may change behaviors to escape unfavorable conditions, and, in some cases, even change their diet or host.

Bed bugs feed readily on the blood of several animal species, including some we keep as pets. This serves as yet another mechanism that enhances bed bugs' chance of survival.

Some bed bug populations remain easier to kill, while other populations are indeed harder to kill due to increased pesticide resistance. These pests have developed alternative ways to survive. And that makes for a successful pest! **PP**

Roberto Pereira is Extension Professor in Urban Entomology at the UF/IFAS Entomology and Nematology Department.

TABLE: Six Urban Pest Species on the "Top 20 Resistant Arthropods" List

RANK	COMMON NAME	SCIENTIFIC NAME	NUMBER OF ACTIVE INGREDIENTS
4	House fly	<i>Musca domestica</i>	62
11	German cockroach	<i>Blattella germanica</i>	42
12	Southern house mosquito	<i>Culex quinquefasciatus</i>	40
15	House mosquito	<i>Culex pipiens pipiens</i>	36
16	Yellow fever mosquito	<i>Aedes aegypti</i>	35
19	Red flour beetle	<i>Tribolium castaneum</i>	33



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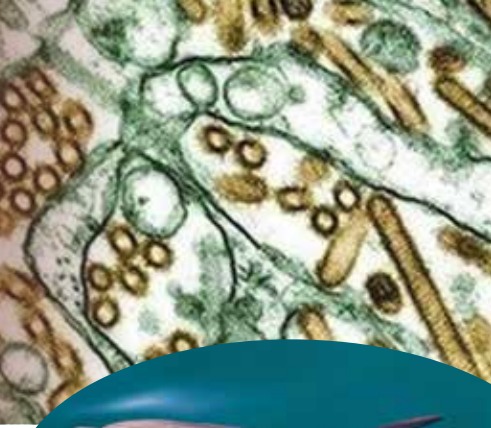


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Highly Pathogenic Avian Influenza

Bridget B. Baker and Samantha M. Wisely



Bottlenose dolphin

Harald Selke



Great blue heron

Andrew Russell

What Is Highly Pathogenic Avian Influenza?

Avian influenza is a highly contagious respiratory virus that circulates globally among wild birds, particularly waterfowl and shorebirds, often with no clinical signs. The virus can move from country to country and continent to continent when infected birds migrate long distances.

Some strains of the virus have low pathogenicity, meaning the virus produces only mild disease in domesticated poultry that are exposed to the virus, like chickens and turkeys.

However, some strains can cause severe disease and mass die-offs in poultry. Such strains are termed highly pathogenic avian influenza (HPAI) viruses. They can cause huge losses to commercial poultry farms and

also threaten backyard flocks, native wildlife, and human health.

In January 2022, a new Eurasian strain of HPAI, belonging to what is called the H5N1 group of influenza viruses, was detected in wild birds in the eastern United States for the first time. The following is intended as a summary of the current outbreak of HPAI in the United States for the general public, with guidelines for preventing infection in people and domestic animals.

What Species Are Affected?

As of July 2022, this Eurasian H5N1 spread quickly in the United States, killing wild birds in more than 40 states and impacting more than 60 species encompassing waterfowl,

shorebirds, seabirds, raptors, vultures and more.

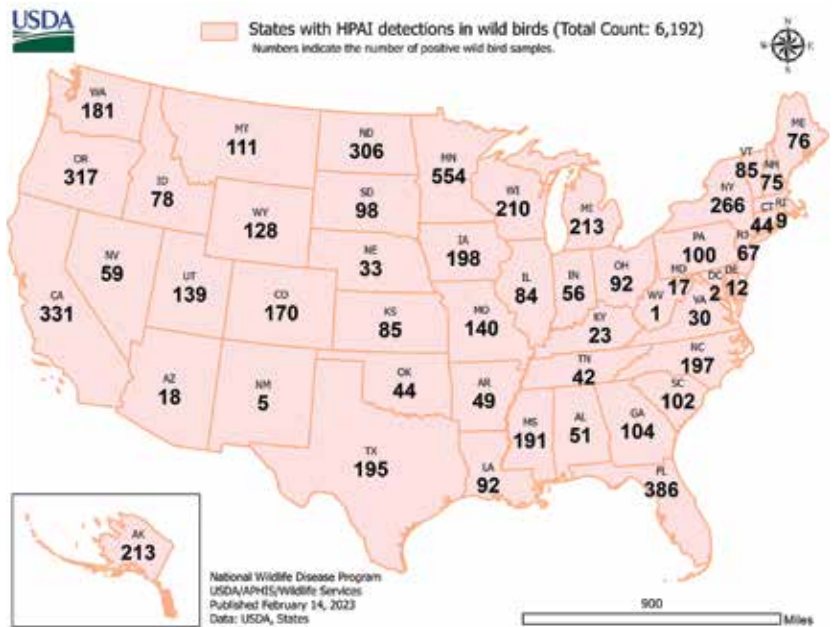
The virus caused the first recorded HPAI outbreak in Florida, predominantly among bald eagles and black vultures. Some mammals are also susceptible to HPAI, for example when exposed to infected birds or carcasses. In fact, red fox kits have developed signs of disease and died during the current outbreak, and a bottlenose dolphin in Dixie County, Florida, was found dead and infected with the currently circulating strain of HPAI.

The map below shows states with HPAI detections in wild birds, 2022–2023. *Continued*



Bald eagle

USFWS



USDA/APHIS/Wildlife Services

SINCE February 2022, when the first commercial poultry farms were impacted, more than 40 million domestic poultry have died or been euthanized. This marks the first notable outbreak of HPAI since 2014–2015, when a different strain affected over 50 million birds.

While lethal to many birds and some mammal species, the current circulating strain is not particularly infectious in humans. As of June 2022, only two people have tested positive for H5N1 worldwide, one of whom was a worker at a poultry processing plant in the United States. Nonetheless, the CDC has developed a potential vaccine against the current HPAI strain as part of an ongoing process to prepare for pandemic threats. Because the virus is primarily affecting animals, the outbreak is called an epizootic.

Although lessons learned from the HPAI outbreak in 2014–2015 have helped to limit the impact of the current outbreak in commercial poultry, numbers

of wild birds impacted have far exceeded the number affected in 2014–2015. In multiple instances, 1,000 or more individuals of one species have died in a single mortality event. Particularly vulnerable species are those with low reproductive rates or small, endangered populations.

Who Has To Worry?

The currently circulating HPAI strain is a low risk for human infection, but it is still recommended that people avoid contact with wild birds. Some situations will exist where people may be in close contact with wild birds, such as with hunting or the use of backyard bird feeders and baths. While H5N1 has been detected in a number of game birds during the current outbreak, the virus has been detected in very few birds that are commonly found at backyard feeders or baths — but basic precautions are still warranted in all of these scenarios.

Since the virus is spread through feces and respiratory secretions from the nose, mouth and eyes, basic precautions are to:

- Avoid contact with bird droppings and birds that are sick or found dead;
- Wear disposable gloves and refrain from smoking, eating, or drinking when cleaning game;
- Wash hands with soap and water or alcohol-based hand sanitizer immediately after handling game, bird feeders, or bird baths;
- Wash any potentially contaminated tools or surfaces with soap and water, then disinfect with a fresh bleach solution (1/3 cup bleach in 1 gallon of water) for at least 10 minutes;
- When disposing of a dead bird, offal or feathers, use an inverted bag or disposable gloves to place potentially contaminated material into a plastic double bag, then throw the bag away in a garbage can that is secure from children, pets, and wild animals.

People who come into contact with wild birds should monitor themselves for 10 days for symptoms like fever, cough, runny nose, sore throat, headache, muscle aches, shortness of breath, or diarrhea. People who develop symptoms should contact their physician or local public health office for potential H5N1 testing.

For those with pet birds or backyard flocks, particularly those consisting of chickens, turkeys, ducks, geese, quail, pheasants, or guinea fowl, assessment of biosecurity practices is strongly advised.

Recommended biosecurity practices to keep your pet bird or backyard flock healthy include:

- Minimizing contact with visitors and other pets,

especially those in contact with other birds (domestic or wild) or those who frequent natural waterbodies;

- Washing hands with soap and water before and after handling birds and related equipment;
- Using dedicated and routinely cleaned and disinfected clothes, shoes and equipment;
- Avoiding contact with wild birds by covering or enclosing outdoor areas, securing food bins, cleaning up wasted or spilled feed, and minimizing standing water on the property;
- Limiting travel to shows, sales and swaps; separating new or returning birds for 30 days.

If a pet or backyard bird suddenly dies or develops signs consistent with HPAI, contact your local veterinarian, agricultural Extension office, animal health diagnostic laboratory, or state veterinarian. Signs consistent with HPAI in birds include respiratory (nasal discharge, gasping for air, coughing, or sneezing), nervous system (tremors, paralysis, twisted neck, or lack of coordination), gastrointestinal (diarrhea), and general signs like lack of energy and purple discoloration or swelling of body parts. **PP**

Bridget B. Baker is Research Assistant Professor, and Samantha M. Wisely is Professor, UF/IFAS Department of Wildlife Ecology and Conservation, Gainesville Florida.

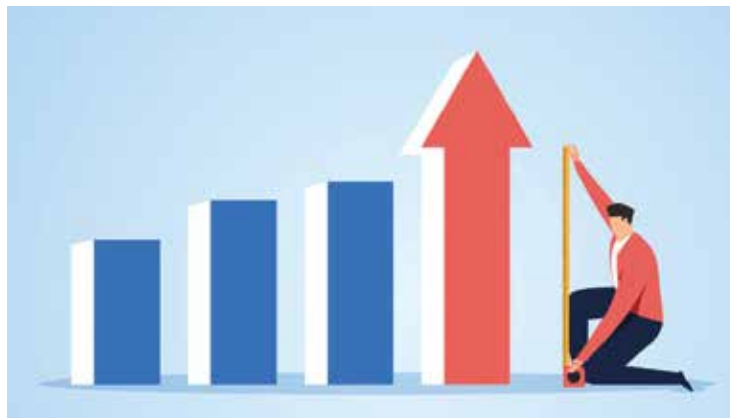
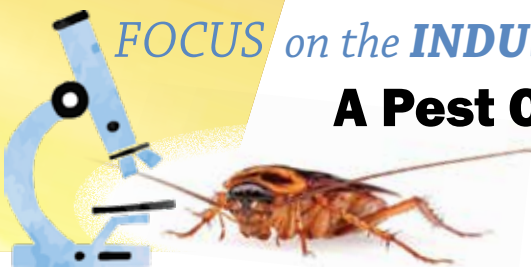
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Backyard birds are generally low-risk, but it is wise to observe basic precautions to avoid HPAI.

Mike's Birds

A Pest Control Business, What's it Worth?



THE most popular PCO question we answer at Kemp Anderson Consulting is, “What’s my business worth?” Our answer is always, “It’s complicated, and there are many variables.” Let’s look at some popular valuation methods to give you a better idea of what companies are looking at when they determine an offer for any business.

Percentage of Gross Annual Revenue

The first valuation method is a percentage of gross annual revenue. When Kemp first started in the pest control industry almost 30 years ago, everyone talked about “dollar-for-dollar” valuations. That was just an easy way for buyers and sellers to describe the value they were placing on the average business. Buyers use a multiple, or percentage of gross annual revenue, as a way to simplify valuation, but it really isn’t an accepted valuation approach.

The problem with a revenue multiple is that it is top line, and we all know all revenue is not the same. As an example, door-to-door pest control companies pay a much higher labor/sales cost and generally have lower customer retention than a traditional operation that focuses exclusively on residential pest related services.

Similarly, service line mix is going to drive other operational differences. Exterior only vs. interior/exterior, solid route density vs. rural routes, and retention are just a few examples that determine the percentage of overhead costs in relation to gross sales.

Here is where a valuation based on revenue multiple

misses the mark, and why we don’t see this valuation method used today: If you had to choose between buying a business doing \$1.5 million with \$200 thousand (13.3%) in profit versus a business doing \$1 million in revenue with \$400 thousand (40%) in profit, all other things being equal, the second business is going to command a significant premium compared to the first as a result of increased margin and not amount of revenue. If we had only looked at revenue \$1.5 million versus \$1 million and used a revenue multiple of 2, the first business would be worth $\$1.5M \times 2 = \$3M$. The second would be worth $\$1M \times 2 = \$2M$. However, the second business makes twice as much profit.

A revenue multiple valuation ultimately serves as a gut check when thinking about what your business is worth. In most cases, we would not recommend signing a letter of intent or agreeing to professional valuation that is based on a multiple of revenue.

In reality, revenue multiple is a conversion of an earnings multiple and not really a valuation multiple. As an example, a company with \$1 million in revenue and \$250 thousand in nondiluted earnings that sells for \$1 million was paid 4x revenue. If they are paid \$2 million, they sell for 8x revenue.

Discretionary Earnings Multiple

A second valuation method is a multiple of discretionary earnings. Discretionary earnings is also sometimes referred to as adjusted cash

flow. A simple way to think about discretionary earnings is to quantify the total financial benefit of a company within a 12-month period (TTM — trailing twelve months or calendar year). To do this, the buyer looks at the taxable revenue (found on the tax return) and then adds back expenses that the owner benefits from throughout the year.

A way to think about this is, what is the business net income or profit when the seller owns the business compared to when a buyer owns the business after close? This will include expenses such as personal cell phones, travel and entertainment, the owner’s vehicle, boats, gas, insurance and other items that the owner has run through the business but that are not mandatory for day-to-day business operations. Once the business is sold, those expenses would not be assumed by the buyer. Those expenses are additional owner’s compensation that reduces taxable income.

Buyers in our industry use a wide range of discretionary earnings multiples, depending on the location, route density, service mix, profitability, employee tenure, and many other factors. In short, benchmarking with a few other owners who have sold their businesses won’t give you a

full picture of what drove the purchase price from a particular buyer. At Kemp Anderson Consulting, we have seen earnings multiples approaching 20x.

A Blend of Variables

The third valuation method is a more sophisticated financial model that takes a lot of variables into account and blends them to come up with a range that the buyer is willing to pay. These models are custom and proprietary to each individual buyer, but they consider many of the same variables that we discussed earlier in this article. You may be asking yourself how you can move into the upper end of a valuation range.

What factors increase the value of an offer?

- Locating your business in an area with a strong and growing economy adds value. Market and location matter.
- Showing year-over-year revenue growth as well as increased profitability builds value.
- A clean set of tax returns and consistent bookkeeping practices will bring value.
- A strong management and high employee tenure demonstrates the business is poised to grow.

Continued on Page 20



Oxitec lab in the Florida Keys

Oxitec



A lab worker examines mosquito specimens

Genetically Modified



THE GOAL of projects that release genetically modified mosquitoes is to control mosquito populations and reduce the risk of mosquito-borne diseases.

Much of the controversy surrounding GM mosquitoes can be attributed to lack of information and/or misinformation.

The purpose of this article is to provide science-based information about GM mosquitoes to the public as well as to those involved in mosquito control in Florida, the United States, and beyond.

OXITEC'S GM MOSQUITO RELEASE IN THE FLORIDA KEYS

Oxitec is a biotechnology company founded in 2002 out of Oxford University in the United Kingdom. This company, in partnership along with the Florida Keys Mosquito Control District, is carrying out small pilot experimental releases as allowed by the US Environmental Protection Agency under experimental use permit in the Florida Keys.

The pilot projects involve releasing Oxitec's GM adult *Aedes aegypti* male mosquitoes (strain OX5034) into small, defined areas to test their ability to reduce the population of wild, i.e., non-GM, *Ae. aegypti* mosquitoes. These projects, which were the first time that GM mosquitoes were released into the field in the United States, began in spring 2021 and are EPA-approved to continue through spring 2024.

Oxitec



A female *Aedes aegypti* mosquito. Only female mosquitoes bite.

Mosquitoes

Eric P. Caragata, Yoosook Lee, and Eva A. Buckner

AEDES AEGYPTI MOSQUITOES

Also known as the dengue or yellow fever mosquito, *Aedes aegypti* is an annoying, biting pest and the species most responsible for transmitting dengue, chikungunya, yellow fever, and Zika viruses to humans. *Aedes aegypti* mosquitoes are commonly found in tropical and subtropical regions, as well as in some temperate areas.

Though all male mosquitoes do not bite, female mosquitoes bite and feed on blood to obtain the nutrients they need to produce their eggs. Female *Ae. aegypti* mosquitoes preferentially bite humans and therefore, *Ae. aegypti* mosquitoes typically live where people do and are commonly found in urban and suburban environments.

If a female *Ae. aegypti* mosquito bites someone who is

already infected with dengue, chikungunya, yellow fever, or Zika, she becomes infected with the virus and can spread it to the next person she bites if they survive long enough for virus to escape mosquito tissue barriers. Because of this, *Ae. aegypti* is a major threat to human health in many areas of the world.

Ae. aegypti is an invasive species established in many areas of Florida, including the Florida Keys. Regular introductions of dengue, chikungunya and Zika have caused local outbreaks in the state, with almost all of those cases occurring in southern Florida.

Effective vaccines are not available for most of the diseases caused by *Ae. aegypti*-transmitted viruses, so disease prevention relies on controlling *Ae. aegypti* mosquito populations. Because *Ae. aegypti* spend their immature,

aquatic life stages in water-filled containers like buckets, jars and tires, removing these containers is essential to *Ae. aegypti* control. Insecticides are also used to target flying adult mosquitoes.

However, these control methods are not perfect. It can be hard to find all the containers inhabited by immature *Ae. aegypti* mosquitoes to treat with larvicides. Also, overuse and misuse of insecticides like pyrethroids have led to many mosquito populations, including those in Florida, becoming resistant to insecticides.

The limited success of conventional control strategies such as source reduction and insecticides against *Ae. aegypti* has led scientists to search for new tools to target these mosquitoes and reduce the impact of the viruses they spread. One of these new tools is GM mosquitoes.

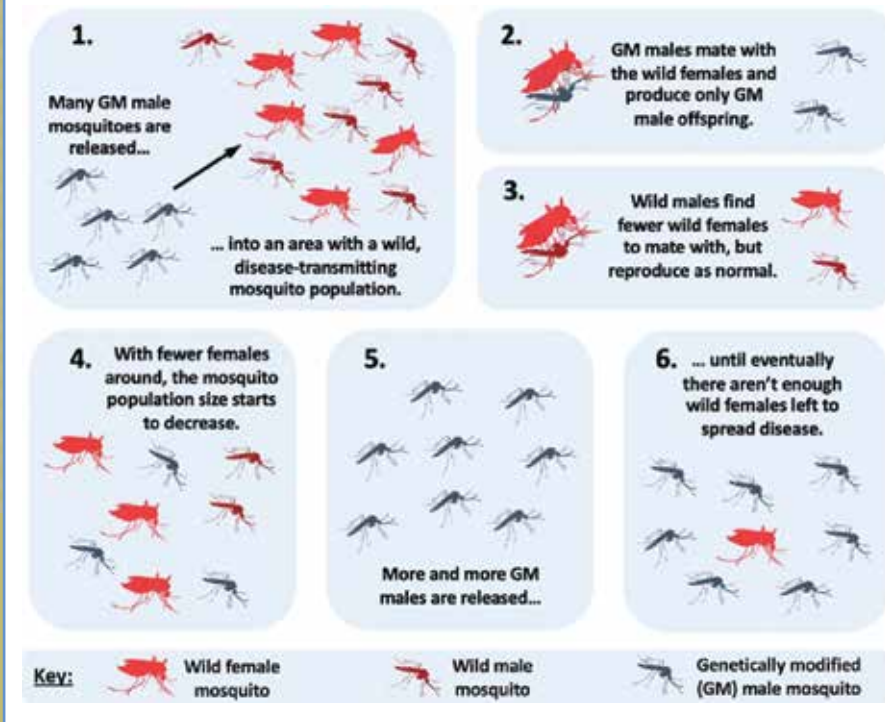
MOSQUITO CONTROL USING GM MOSQUITOES

There are two basic approaches to mosquito control using GM mosquitoes. These are known as **population suppression** and **population replacement**. Both approaches involve releasing GM mosquitoes into nature.

Population suppression is the approach being used in the Oxitec project in Florida. The goal of this approach is to reduce the number of mosquitoes in an area over time, which will lower the risk of pathogen transmission. GM mosquitoes used for population suppression are typically male mosquitoes modified so that the survival of the next generation of mosquitoes is reduced. The GM males are released into nature, where they mate with wild female mosquitoes. The modification is inherited by their offspring, which might have a greatly reduced hatch rate or die before they develop into adults, depending on the function of the modified gene. As a result of these changes to immature mosquito survival, the population size decreases.

In contrast, the goal of population replacement is not to eliminate mosquitoes from nature, but to replace a wild mosquito population with a modified population that is resistant to infection with important pathogens. Population replacement also involves the release of GM mosquitoes, which pass their pathogen resistance gene to their offspring. Over time, mosquitoes in that region become less capable of spreading the pathogen.

Continued on next page



E.P. Caragata, UF/IFAS

Immature mosquitoes hatch from the eggs, but because of the self-limiting factor inherited from the Oxitec Friendly™ *Ae. aegypti* GM male parental mosquitoes, only male offspring mosquitoes survive to adulthood.

The absence of female offspring mosquitoes in the population quickly leads to a large drop in the number of *Ae. aegypti* mosquitoes in the area.

Will the release of Oxitec's Friendly™ *Ae. aegypti* mosquitoes disturb the ecosystem?

This is not very likely. They are not native to Florida. Additionally, no animal relies solely on *Ae. aegypti* mosquitoes as a food source. Some animals like bats, frogs, dragonflies, and small fish may feed on mosquitoes, but they also feed on many other insects.

Will Oxitec's Friendly™ *Ae. aegypti* mosquito stay in nature forever?

No. This technology is designed to be self-limiting, which means that the mosquitoes that Oxitec releases into nature will gradually die off. This is expected to occur a few months after Oxitec and the Florida Keys Mosquito Control District stop releasing mosquitoes. **PP**

Eric P. Caragata is Assistant Professor, Yoosook Lee is Assistant Professor, and Eva A. Buckner is Assistant Professor and State Extension Specialist at the Entomology and Nematology Department, UF/IFAS Florida Medical Entomology Laboratory, Vero Beach, Florida.

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How are GM mosquitoes developed?

GM mosquitoes are produced using a technique called embryonic microinjection. This involves injecting freshly laid mosquito eggs with a very small needle containing engineered DNA often called a transgene. This engineered DNA or transgene integrates into the mosquito genome and specifically activates or inactivates a target gene.

What type of GM mosquitoes are being used?

The mosquitoes being used in the pilot project in the Florida Keys are Oxitec's Friendly™ GM strain OX5034 of *Ae. aegypti* mosquitoes. Female Friendly™ *Ae. aegypti* mosquitoes die before reaching adulthood, which is when they are capable of biting and spreading pathogens. Adult male Friendly™ *Ae. aegypti* mosquitoes, like non-GM male

mosquitoes, do not bite and survive to mate with wild non-GM females.

What happens during the projects?

Researchers and Florida Keys Mosquito Control District personnel release many male Oxitec Friendly™ *Ae. aegypti* mosquitoes. These find and mate with wild non-GM female mosquitoes. After mating, the wild female mosquitoes lay eggs.

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Risky Business

Allen Fugler

What PMPs Are NOT Doing Can Create Hidden Liabilities!

IN TODAY'S fast-paced business environment, pest management companies must stay up to date with the latest technologies and industry standards to remain competitive. However, some companies are reluctant to invest in new technology or adopt industry standards, either due to cost or a lack of understanding of the benefits. This can lead to a range of liabilities that can impact a PMP's bottom line, reputation, and long-term success.

Adopt New Tech and Practices

One of the primary liabilities of not using the latest technologies is the risk of falling behind the competition. By failing to adopt new tools and techniques, companies can quickly become outdated and struggle to keep pace with their competitors. This can lead to lost market share, reduced revenues, and decreased profitability. In addition, companies that fail to embrace the latest technologies can also face increased costs, as they may need to spend more on maintenance and support for outdated operating systems, treatment methods and marketing venues.

Examples of technologies and practices that should be under continuous review and consideration include:

- *Routing, communications and operational software upgrades:* Dispatching software can make real-time adjustments to routes to condense them and avoid traffic delays, while making SMS/text notifications to customers on expected arrival times with technician photos for identification.
- *Telematics software for fleet vehicles:* Services can now notify and coach drivers in real time and prevent cell phone use while in transit, the leading cause of distracted-driving crashes. Use of this service is increasing among auto insurance carriers and can make the difference in rates and even a fleet's insurability.
- *Wearable technologies:* Biometrics devices can notify the office in the event of a health emergency, an auto crash with injuries, or the warnings of prolonged heat

exposures in hot attic or L&O treatments. These devices can save lives, keep employees healthy, and avoid downtime due to workers compensation claims.

- *Utilizing the most advanced products, devices and methods:* Deploying the "latest and greatest" proven technologies can build a company's reputation as an industry innovator, improve customer confidence that shows in retention and acquisition rates, and reduce the risk of claims incumbent with older, more fallible products. Insurance carriers writing general liability policies often review the products used in termite, bed bug, and general pest operations to determine the quality of risk, which is an important underwriting consideration when determining insurability and premiums.
- *File documentation and technician training:* Online resources have made these critical areas easier while improving the quality of both. These records will protect companies from contractual misunderstandings, accusations of negligence in misapplications and potential regulatory action on administrative record-keeping violations.

Observe Industry Standards

There is clear liability of not following industry standards in the risk of legal and regulatory noncompliance. Pest management companies have established standards and regulations in 5e-14 and Chapter 482 that compel adherence in order to operate legally and safely. Failure to follow these standards can result in fines, legal action, and damage to a company's reputation, as violations are public record and issued quarterly from DACS.

Depending on the nature of violations, noncompliance can even result in the suspension or revocation of a company's applicator's license to operate, especially if they are related to direct or subcontracted fumigation operations.

In addition to legal and regulatory risks, companies that do not follow industry

standards can also face reputational risks. Customers expect companies to operate responsibly, efficiently, and ethically, and failure to meet industry standards can damage a company's reputation and erode trust among the public at large. This can lead to decreased customer loyalty and renewal retention, and even negative media coverage in the event of an unfortunate incident gets notoriety in traditional outlets, social media platforms and/or the numerous onsite rating review sites.

Finally, PMPs that do not use the latest technologies or follow industry standards may also experience decreased employee morale and productivity. Outdated systems and processes can be frustrating and time-consuming for employees, leading to reduced job satisfaction and lower productivity. This can eventually lead to increased turnover, higher training costs, limited compensation potential for employees, additional and unnecessary call backs and a decrease in overall operational efficiency.

Pest management companies that fail to invest in new technologies and adopt evolving and proven industry standards can face a range of liabilities that can impact their bottom line, reputation, and long-term success. While it can be tempting to stick with tried-and-true methods, failing to keep up with the latest advancements in technology can be a costly, intentional oversight. By staying ahead of the evolutionary curve, visionary PMPs can position themselves for success in the ever-evolving business landscape and meet and exceed the next generation's customer expectations. **PP**

Allen Fugler is the President of TermiTek, LLC, a manufacturer and marketer of innovative termite technologies. He also provides risk management consulting services for pest management companies to lower claims rates, enhance employee safety and productivity, and improve insurability and insurance carrier underwriting consideration. He can be reached at 505-310-6992 and allenf@termitekllc.com.

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Business Worth, continued from Page 15

- A higher percentage of recurring revenue and less one-time services add value.
- More predictable and stable cash flow adds value.
- High route density and low callback rates indicate the business is being operated efficiently and will add value.
- Regular annual price increases add value to the buyer.
- A high percentage of auto-pay customers adds value to the buyer.

What factors will reduce the value of an offer?

- An overreliance on the owner for management will lower the value of the deal.
- High customer turnover will lower the value of the deal.
- Low pricing.
- High cost of goods sold (labor, chemical costs, fleet, fuel), beyond industry norms.
- Poor hiring practices (no drug tests, background, or driving records checks).
- Allowing drug use. Please remember, marijuana is still against federal law.

Understanding a few different valuation variables is meant to act as a starting point for financial guidance and shouldn't substitute for professional advice. Seasoned buyers tend to use sophisticated blended financial models that look at a host of variables, including some of the ones mentioned above.

At the end of the day, the simple truth remains: a business is worth what someone is willing to pay. Buyers will try to buy as low as possible, and sellers should take the time to prepare their business to maximize value and be prepared to negotiate the deal. Ultimately, buyers pay more when the business is well run and earnings are on the higher end of industry norms. **PP**

*The team at Kemp Anderson Consulting
 Theresa Childs, Grant Sinnott,
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Larvae with their silk strands



Damage:
Oak leaves 'tied' together



Oak leaftier adult



Larvae



Oak leafroller adult

Photos by Lyle J. Buss



Larval silk blanketing a plant



Extreme infestation on tree trunk

Oak Leaftiers and Leafrollers

Lyle J. Buss

IN LATE February 2011, I got a call from the Pinellas County Extension office. They were getting inundated with calls about little green caterpillars coming from the oak trees.

I went down there to check it out and was amazed at the outbreak that was going on. Thousands of caterpillars were crawling all over the oaks, on the ground, and over plants beneath the oaks. They were leaving behind a lot of silk, which was covering tree trunks and understory plants like a blanket. They were feeding on oak leaves, but the understory plants were not damaged, even though dozens of live caterpillars were on them.

The main species involved were the oak leaftier, *Acleris semipurpurana*, and the oak leafroller, *Archips semifera*. As their common names suggest, the caterpillars feed by tying leaves together or rolling them to create a shelter that they live and feed in. Sometimes the caterpillars get spooked from their shelters and bail out, holding on to a single strand of silk.

If you walk beneath an oak tree, you may see some of these small caterpillars dangling in front of you as if they were bungee jumping. They also go down to the ground when they have finished feeding, so they can pupate in the leaf litter.

The caterpillars are green and one-half to 1-inch long. They have only one generation per year, with the caterpillars doing most of their feeding in March and April in Florida. They usually don't cause serious damage to the trees, and trees that are heavily defoliated will usually put out a new flush of leaves.

If an oak experiences severe defoliation for two years in a row or in conjunction with another major stress like drought, then damage like some branch dieback may occur, but this is uncommon in Florida. **PP'**

Lyle J. Buss, Scientific Photographer, manages the Insect Identification Lab at the UF/IFAS Entomology and Nematology Department.



Heat, Hydration and Dehydration: Know the Signs and Symptoms

IT IS heating up in Florida and around the country. We need to be mindful of keeping our bodies properly hydrated. Bring water with you.

Know the signs and symptoms of dehydration, and seek help when you need it

I have heard of cases where a worker went and sat under a tree, without telling anyone, because he didn't feel well while working in the heat. When his coworkers found him, he had passed away from dehydration under that tree.

I have also heard of a person suffering from dehydration and not feeling well when working in their yard in a very hot climate. This person did not drink water while working outdoors for hours. The person went inside to lie on the couch, rest, and try to feel better. It was too late for this person, and he also, unfortunately, passed away from dehydration.

Many of us don't recognize the signs and symptoms of dehydration. Now is the time to review this information

and be informed. Drinking water during extreme heat can save lives.

Signs and symptoms of heat-related illness

Low fluid intake, dehydration and/or heat-related illness may cause:

1. Difficulty swallowing
2. Extreme thirst
3. Rapid pulse
4. Dry mouth due to low saliva production
5. Headache
6. Nausea
7. Fatigue/tiredness
8. Loss of appetite

9. Dry eyes
10. Confusion
11. Dizziness
12. Losing consciousness/fainting
13. Muscle cramps
14. High body temperature

Don't ignore these signs and symptoms of dehydration and/or heat-related illness. Recognize them. Drink plenty of water to stay hydrated and prevent dehydration. It can save your life. **PP**

*Brenda Marty-Jiminez
UF/IFAS Extension
Broward County*

Learn more about heat safety at <https://www.cdc.gov/disasters/extremeheat/warning.html>

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Silverfish head, up close



Adrian S. Francisco

The Incredible, Loveable SILVERFISH

Danny Dye

Wait, what?

“The incredible, lovable silverfish?” You’ve got to be kidding me!

Well, maybe not so lovable, but definitely incredible.

HERE’S A true story about a persistent silverfish infestation. A technician was having difficulty controlling silverfish at a residential account. He explained to me what had been done as far as control products used and application sites. He just could not get them under control.

Arrangements were made to meet with the customer at their home. The home was very well kept and clean. The customer pointed to the master bathroom as being the area with the most silverfish activity. After inspecting the entire bathroom, including the cabinets and linen closet, only a few dead silverfish were found. The master bedroom was then inspected without any findings.

I asked the technician if he had inspected the attic. The tech answered, “No.”

The next step, of course, was to inspect the attic. As we made our way over to the master bathroom area, a dead opossum was found above the bathroom!

From the looks of it, it had been there a long time. I nudged the hairy hide, and out poured a dozen or more silverfish!

The technician was amazed at what he had just witnessed. At that point, he realized the most important part of the service is a thorough inspection. Lesson learned!

Fast Facts

Did you know silverfish are one of the most primitive insects on earth, dating back to over 400 million years ago? Now that’s incredible, don’t you think? Did you know they can live up to six years — providing the individual lives a charmed life away from predators and the foot of a human?

Did you know they feed on almost anything in our homes? It’s true! Silverfish will feed on bookbinding, hair, clothing, carpet, glue, coffee, sugar, paper, leather, cereals and dandruff! They will even feed on their own molted exoskeleton and dead insects. So, if you think you can starve them out, think again!

On top of their omnivorous appetite, silverfish can live for 12 months or more without feeding, as long as water is available.

Management

How do we get rid of silverfish, you ask? We don’t! *I tell you, we’re doomed!* Just kidding. The good news is, they’re seldom in high enough numbers to be of any concern.

But, on occasion, they can get out of hand. Here’s an example of “out of hand.” You get up in the morning to brush your teeth and there it is, a silverfish, frantically trying to climb out of the sink, but it can’t because it lacks the spongy sticky pads on its feet like roaches have. You’re ready to step in the shower and there’s another one! *OMG!* What next, spiders under the toilet seat? Okay, that never happens.

Infestations are often localized, so finding the source and removing it is the key to controlling these incredible creatures. Removing potential food sources, eliminating

Continued on next page



Christian Fischer



Photo illustration: Silverfish on a glue trap.

Silverfish, continued

moisture, and sealing cracks, crevices and entry points around the structure is a must.

If it's a large infestation, turn your attention to outside the structure. Look for debris, woodpiles, firewood and such stacked up against the house. These are harborage areas for silverfish.

If conducive areas are found, they must be removed before any application of an approved properly labeled product. Then do a thorough treatment of any cracks, crevices and entry points around the structure.

Even after performing a thorough inspection/treatment of the interior, a silverfish infestation could still persist. That's when you have to step back, look at the structure, and figure out what you have missed.

There will be times when locating the source will be difficult, but remember we have tools such as small glue traps that can be placed and monitored. Date and number the glue traps, then place them at several locations in the area the silverfish are seen the most. Log the number and location on paper to keep track of them.

Schedule return trips weekly or every two weeks to check and count the number of silverfish in the traps. The one with the highest number of catches is the winner and should be the closest to the source.

Start your inspection process again from that point. Remember to place the glue traps in locations where pets and children cannot come in contact with them, on the floor and up against the wall is a proper placement — not in the middle of the floor.

CONTROLLING SILVERFISH can be difficult at times. The more you know about their biology and habits, the better you will be equipped when it comes to tackling an infestation. Know your enemy: Think like a silverfish! **PP**

Daniel D. Dye II is Associate Certified Entomologist Emeritus

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Growing the Landscape Industry Through Certifications

Erin Harlow

A SUCCESSFUL landscape professional is versed in many different subject areas to deal with all the variables that may be found in the landscape. These might include soil health, plant selection and care, pests and diseases, pest control options, identification, water, and weeds.

How do you know that you are working with the best and brightest in your industry? Maybe you are a landscape professional and you want to become more marketable and be recognized as top in your field.

A good place to start is to explore optional certifications for landscape professionals. These

certifications go beyond what is required by the state or local municipalities to do work, such as pesticide licenses. They are truly certifications to provide professional development for professionals.

Many different certifications are available to professionals through many different organizations. It is important to select well recognized, vetted, credible programs to maximize your return on investment. Speaking of investment, you should consider the time you are willing to put into obtaining the certification, your budget, and how you can use your certifications as marketing.

This article highlights professional certifications from both the University of Florida and the Florida Nursery, Growers, and Landscape Association (FNGLA). These certifications range in scope, price, experience level, and address different sectors of the industry including landscapers, irrigation, designers, and contractors.

Florida-Friendly Landscaping™ Certified Professional (FFLCP)

This certification is provided by the University of Florida's Florida-Friendly Landscaping™ State Office. There are two parts

to this certification. The first includes instruction time and can be done online, six hours total. If you already have other certifications listed in this article, the course hour requirements may be reduced. Each one-hour module is \$20.

The second part of the certification is a field day where you identify FFL principles on-site. The cost for this portion of the certification is \$50. For class information and upcoming field days, visit <https://ffl.ifas.ufl.edu/ffl-and-you/ffl-professional-certification/>.

Continued on next page



Landscape Certifications, continued

The certification must be renewed every two years, with two hours of continuing education units (CEUs) on irrigation, fertilization, pest control practices, current research on turfgrass, stormwater detention design/maintenance or other FFL-related practice. There is a \$50 renewal fee.

Florida Water Star Accredited Professional (FWS-AP)

FNGLA hosts this certification in partnership with Florida's water management districts. This certification is appropriate for individuals who wish to increase their knowledge of water conservation. Individuals will be trained on how to create landscapes that qualify for the Florida Water Star program.

The FWS-AP includes classroom training and an exam. There are two options for professionals. They can take the landscape exam, irrigation exam, or both.

The training can be completed online or in-person and ranges from \$25 to \$75, depending on the site. The written exams are available for \$50-\$60. More information can be found at <https://fn gla.org/professional-development/certifications/florida-water-star>. This certification is good for three years and requires 15 continuing education units to renew.

FNGLA Certified Horticulture Professional (FCHP)

This is a great place to start if someone wants to add a certification to their resume. The FCHP is designed to test knowledge of horticultural practices and plant identification.

This certification is completely online. This four-part exam tests plant ID, practices, safety, and general horticulture.

The manual is \$170 for non-FNGLA members and is a wonderful reference guide for later use. The exam fee ranges from \$90-\$140. This license is good for three years and requires 15 hours of CEUs for renewal.

FNGLA Certified Landscape Technician (FCLT)

If you install plants or work with those that do, then this certification could be for you. It tests the skills of landscape technicians through a hands-on exam.

The day-long exam covers plant identification, plan layout, tree installation, pruning, palm banding, grading and drainage, irrigation, equipment operation, and job evaluation.

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The exam fee is \$250–\$385 and the manual is \$40–\$55. This certification is valid for three years and needs 15 CEUs to renew.

FNGLA Certified Landscape Maintenance Technician (FCLMT)

Do you work with the maintenance of plants and landscapes? This certification is a great addition to the Green Industry Best Management Practices (GI-BMP) certification that is now required for those wanting to obtain their fertilizer licenses. The FCLMT focuses on maintenance and tests practitioners through a hands-on exam.

The exam has multiple sections that include plant identification, pest management, fertilization, truck and trailer, irrigation, pruning, site evaluation, and turf management.

The fees for the manual are \$40–\$55, and the exam costs \$220–\$330. The certification needs to be renewed every three years with 15 CEUs.

FNGLA Certified Landscape Irrigation Service Technician (FCLIST)

Irrigation is such an important aspect of the landscape to understand and can be a costly mistake if not done correctly. To help identify trained irrigation professionals and provide professional development to this sector of the industry, the FNGLA launched the Certified Landscape Irrigation Service Technician.

This is a hands-on certification to measure the skills of the landscape technician. One year of work experience is recommended, but not required. This day-long exam covers parts, safety, codes, sprinklers, valves, system controllers, wiring, pipe and fittings, operational efficiency, and basic troubleshooting.

The manual for this exam is \$75–\$110 and the exam fee is \$250–\$385. The certification needs to be renewed after three years with 15 CEUs. This certification, like the others, does not replace local licensing requirements and irrigation contractors should check if an irrigation license is required in their area.

FNGLA Certified Landscape Designer (FCLD)

This is one of the most advanced certifications offered by FNGLA. To qualify to take the exam, the applicant must have completed their FNGLA Certified Horticulture Professional (FCHP) and have

Continued on next page



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Landscape Certifications, continued

two years of design experience. Following the written exams, the applicant must also submit a completed landscape design plan with photos and letters of reference to complete the process. The remainder of the exam is written.

The fee for the exam is \$220–\$330, plus the cost of study materials. The exam focuses on plant identification and selection, design principles, site design, and landscape law and sustainable practices. This certification is valid for three years which can then be renewed with 30 CEUs.

FNGLA Certified Landscape Contractor (FCLC)

Another advanced certification offered by the FNGLA. The landscape contractor certification requires that contractors have worked in the industry for a minimum of three years with one in Florida before they sit for this exam. The applicant must also have completed both the FNGLA Certified Horticulture Professional (FCHP) and the Landscape Technician certification (FCLT).

This is a written exam that covers landscape law, accounting, estimating, and construction documents.

The exam fee is \$110–\$165, plus the manual fee. The certification is valid for three years and must be renewed with 30 CEUs.

Consider looking to these certifications when you are looking for your next skilled employee, providing professional development opportunities to empower your crew or yourself, or subcontracting work to a landscaper. Completing any of these certifications show determination, skill and mastery of a subject by the certificate holder, and provides the company with the chance to employ more capable professionals. Any of these certifications are also a great way to add to your company marketing strategy. **PP**

For more information on FNGLA's certifications, visit <https://fn gla.org/professional-development/certifications/>

Erin Harlow is Horticulture Agent III, UF/IFAS Extension, Columbia County.

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PCO Pointer

Facts from FDACS: ID Card Training Requirements

THIS QUESTION came up at a training meeting I recently attended: Do ID cardholder training requirements include salespeople?

According to Chapter 482.091 (3): A licensee or certified operator may not assign or use an employee to perform any category of pest control without providing trained supervision, unless the employee is trained and qualified in that category of pest control.

In addition: An employee may not perform, solicit, inspect, or apply pest control without first having been provided at least five days of field training in the appropriate category of pest control under the direct supervision, direction, and control of a certified operator.

Since an employee selling pest control must have an ID card, in addition to the initial five days of field training they must receive the safety training listed in 482.091 (10) and

at least two hours of documented technician training every year.

I know this is not what some people wanted to hear when it comes to salespeople, but I don't make it up, I just report it. **PP**

*Report by Paul Mitola,
Environmental Consultant,
Florida Department of Agriculture
and Consumer Services*

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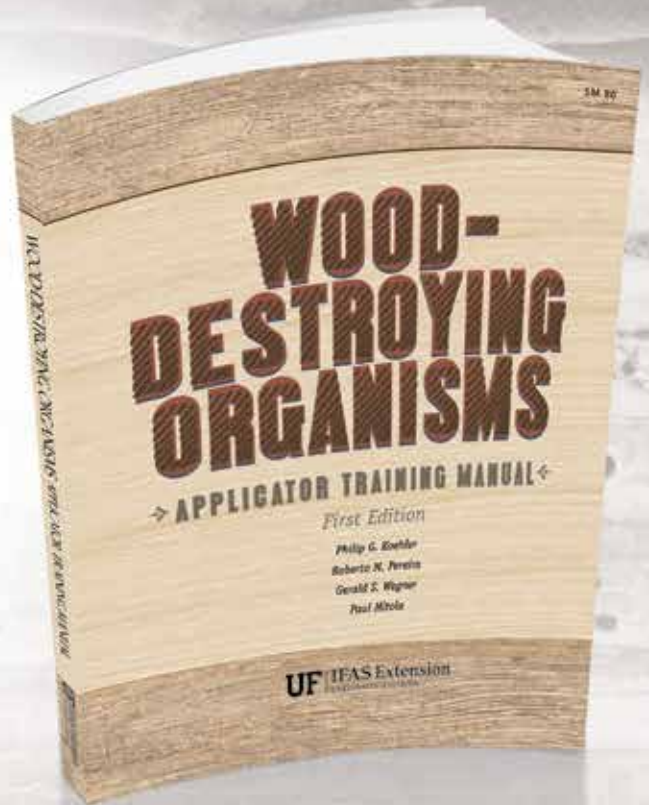
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