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UNIVERSITY of FLORIDA

EPISODE 225 TRANSCRIPT

Jamie

Welcome to Two Bees in a Podcast brought to you by the Honey Bee Research Extension Laboratory at the University of Florida's Institute of Food and Agricultural Sciences. It is our goal to advance the understanding of honey bees and beekeeping, grow the beekeeping community and improve the health of honey bees everywhere.

In this podcast, you'll hear research updates, beekeeping management practices discussed and advice on beekeeping from our resident experts, beekeepers, scientists and other program guests. Join us for today's program. And thank you for listening to Two Bees in a Podcast.

Hello, everyone, and welcome to another episode of Two Bees in a Podcast. Today, we are joined by David Williams, who is the Senior Manager in the Plant Protection Division for the Georgia Department of Agriculture here in the United States, in the state of Georgia. David is here talking to us today about the yellow-legged hornet. David, thank you so much for joining us on this podcast.

David Williams

Glad to be here.

Jamie

So, David, we brought you on to talk about the yellow-legged hornet. This is a big deal for us, here, especially in the southeastern part of the US. It's distributed in Europe and other places around the world. But David, before we even jump into discussing the yellow-legged hornet, our listeners are going to want to know how you found yourself in the honey bee world, right?

You work for the Georgia Department of Agriculture. So, how did you end up working with honey bees? So, tell us a little bit about yourself and your movement into honey bees and yellow-legged hornets.

David Williams

I chuckle a little bit because it's not an easy answer, certainly not something that I grew up thinking, man, I'm going to be the Senior Manager for the Georgia Department of Agriculture, and I'm going to be over the Apiary Inspection Service. But my first exposure to honey bees, I had a great uncle when I was really small, and he was a beekeeper down around the Okefenokee Swamp in Southeast Georgia.

So, I was exposed to honey bees and the honey house scene really early, and I grew up. In high school, a friend of mine, his daddy was a beekeeper and before we could go hunting or fishing, we would have to go feed honey bees.

So, I found myself feeding honey bees, helping a friend of mine. Later in life, I went to school at Abraham Baldwin Agricultural College in Tipton, and man, when I started with the state of Georgia, I was really young. They hired me as a plant inspector and after a few years of being in the plant inspection world, my boss came in one day and said, we need some volunteers. And we didn't know what he was wanting.

But what it was dealing with was small hive beetle as that was when the small hive beetle first arrived in the United States, and they needed a bunch of helpers to help to be inspectors. And one of the other young guys, he said, “I’m not working honey bees. I'm scared to death of honey bees.” I was young and stupid, and I said I'm not scared of anything. And my boss said, “That's what I wanted to hear.” I know everybody wears these inspection jackets nowadays, but all he threw me was a pair of gloves and a hive tool and said, “We’ll get you a veil later.”

So, I went to inspecting honey bees. And as I worked up in my career, I felt myself inspecting honey bees a lot more, became a supervisor and worked my way up. And now, yeah, I'm the manager over the program. Pretty straight. I know it's a long story, but that's how I ended up in this world.

Amy

That is such a fun history to hear about you, you know, growing up and having to keep bees and feed them before you got to do anything fun, right? Like hunting and fishing. And then you just kind of landed in this job. That's hilarious. It's kind of funny that he didn't give you a veil first. He just gave you a hive tool and a pair of gloves.

David Williams

We're going to get started and the money will catch up later, and we'll get our supplies when we can.

Amy

All right, so David, we brought you on to talk about the yellow-legged hornet, which is the Vespa velutina out there. You know, in 2020 we had best the Vespa mandarinia that was found not in the Southeast, but it was found in Washington state.

I feel like it gave me job security because the media was all over it and saying, you know, the murder hornet is here, it's coming after us and it's in Florida. And I was a person who basically

was like, no, it's not here. And then a couple years later, you know, we got something that said, hey, Vespa velutina has been found in Georgia.

And so, that was when it kind of, you know, peaked mine and Jamie's interest in saying, oh, this is not good, right? Vespa mandarinia is not here, but now, its cousin, the murder hornet's cousin, Vespa velutina is now here in the Southeast. And so, I was wondering if you could give just a little history or background about, you know, how long it has been in Georgia or if you even know how long it's been in Georgia.

David Williams

Well, you guys know that I'm in my truck today, and I don't have my computer with me, and I don't have a lot of that stuff. So, what you're getting is me sitting in the truck coming up with this stuff off the top of my head now.

Jamie

We want nothing less. We want nothing less, David.

David Williams

I'm not a biology professor, but I know, I mean, there's a lot of questions you'll probably have that I will not be able to answer. But I will tell you this, as far as yellow-legged hornet, I had never in my life heard of yellow-legged hornet.

I have heard Asian Hornet, right? And when my director, Mike Evans, called me and said, “David, we think we might have an Asian Hornet down in Savannah,” I had no idea what the next two years of my life was going to look like.

Was like, oh, OK, well, that's cool. But it wasn't cool. It wasn't cool at all. Shortly after the thing, they said it's an Asian Hornet. And they said we can't call it Asian Hornet. We're going to call it yellow-legged hornets. OK, all right, we'll do that. Yellow-legged hornet. How did we find it in Georgia? A man by the name of Vince Perna. And I want people to know his name because he's very integral in the story of yellow-legged hornet in the state of Georgia. Vince Perna was a hobby beekeeper. This was the first hive he ever owned in his life.

He liked to sit in the afternoon and watch his bees do their thing. Well, one day he's outside watching them, and something steals one of his honey bees. And it hurts his feelings and it ticks him off. Well, a few minutes later, something else comes in his yard, grabs another one of his honey bees.

But he picked up a stick and knocked it down. That's critical, right? I mean, not many people would have taken the time to do that, but the next step is really incredible what he did. He took pictures of it, and he went on the Internet and he researched it.

But the key thing, the biggest thing is he called somebody. He let somebody know that, hey, I think we have this in the United States. Had he not done that part of it, since the yellow-legged hornet, the program's been started and we've been working it, we've had other people say, oh yeah, I've seen that.

Oh yeah, I've seen that. You hear that all the time, but you didn't report it. Vince Perna is the man that reported it to us. Had he not done it, that would have been a whole another year that they would have been able to build their nests and disperse queens and drones and we would have been behind that much more.

He lives in Thunderbolt, Georgia. I don't know if, if you're familiar with the Savannah area. Thunderbolt's a little community right on the outside of Savannah. It's actually in between Savannah and Tybee Island, and it's really marshy area of the state.

So, Vince calls us and he says, hey, I think I got something for you. So, we take it to the University of Georgia. The University of Georgia, brilliant scientists. They look at it, and they're like, oh boy, yeah, that's it. We're pretty sure. But nobody wants to stay for sure because you don't want to be wrong.

Nobody wants to be that guy that says, hey, we got it and then we're wrong. So, we have to run it all the way up the chain to the USDA. I work for the State Department of Agriculture. State Department of Agriculture turns it over to the University, the University then turned it on over to the USDA, actually goes all the way to the Smithsonian Institute. And they have guys that look at it and they come back and say, yes, this is it. This is a new finding in the United States. So once all of that happens, then they come back and say, all right, now you can tell everybody what you have. Up until then, we're not supposed to, right?

We're not supposed to say, oh, we got it, we got it, until it runs that course. That was August of 2023. That's when we went down to Savannah, we pulled samples, we got confirmation. Our commissioner, he says, hey, look, we've got a report down in Savannah.

We got a yellow-legged hornet. All we know is we have to respond. We don't know what that response looks like at the beginning. It's really difficult to know what are we going to do? We don't know. Was it a one-time thing? Are they established? We have no idea where we're at the beginning.

So how do you find out where you're at? Well, we set out traps. That's what we decided to do. We talked to our friends out of Washington state because they have been dealing with the northern giant hornet.

They had a few recipes and a few tricks that they had learned. Bear in mind, in Washington state they have 4 nests, 4 colonies. That's all they ever found. Whereas these hornets in Savannah, we

found five nests in that first year. So, we knew that they had been here for a little while. Nobody really knows exactly how they got here and nobody really knows exactly how long they've been here. The guesses are 2020-2021.

Of course, everybody assumes that they got here on a ship in cargo. It's a good idea. It's good because a lot of cargo comes in and out of the port of Savannah. There's also military installation in Chatham County where they bring in a lot of equipment from overseas.

Very well, it could have hitchhiked in some of that. We don't really know. Scientists are running a lot of research right now. They're testing DNA, and that's way over my head. But they tell me that eventually, they'll probably have a better idea of where it came from.

It's just going to take some time for that kind of work to catch up with it. I wish we knew that. I wish we could tell Florida, for instance, hey, this is how it got to Georgia because, hey, if they made it to Georgia, they can make it to Florida, they can make it to Louisiana, they can make it anywhere if they can make it to Georgia. So, we really need to find out how they got here.

Jamie

I think that's a really neat overview, a really succinct overview of the struggle that folks have when there's these introduced species, these new found threats. In this case, you know, the reason you're on a beekeeping podcast, obviously is because the yellow-legged hornet is a threat to honey bees.

And so here you are, right? Doing your job. And then you're told that there's this new wasp that's been found in Savannah, Georgia, and all of these questions immediately come. And I love how you talk about having to learn more about it and not knowing what tomorrow holds as you guys try to formulate a response.

You did say, in one of your comments, that you guys have reached out to the folks in Washington where they had battled the northern giant hornet, it seems like successfully, I don't think it's been found in a few years. But you said something about recipes. I'm assuming you're talking about baits that go on to trap.

So, you had spoken a little bit about this. You said something like, you know, we immediately started putting out traps. So, could you talk about that response? Could you talk about this trapping effort and what type of traps, how you're capturing them, where you're capturing those kinds of things?

David Williams

I've been working for the state of Georgia for 32 years, and in those 32 years I've trapped a lot of different bugs. I can remember the USDA funded some trapping for hornets years ago, and I was relying on a lot of that.

My whole team was. We remembered the traps that we used were just dead fall traps. The baits that we were using were fruit juice and sugar. That was kind of what we got started with. The recipes coming out of Washington State, they used more rice wine, orange juice, things like that, and we did too. We used rice wine, we used beer. We used anything you can think of that has sugar in it that we thought maybe would attract them. Pear juice was one.

Pear juice worked really well. It was just old-fashioned, whatever we had on hand that would work as a deadfall trap and hold juice. So, we used just all kinds of different traps that we had laying around. We had no money to go out and buy a new trap, nor did we know what kind of trap to buy at that time.

So, we're just stringing up traps around in the Chatham County area with all these different concoctions. The guys came up with some really good names. You have Bonaventure Brew, Bonaventure Brew, there's a cemetery, a famous cemetery outside of Savannah called Bonaventure Cemetery. Georgia Juice was named by the South Carolina state apiarist, Brad Cavin, and Brad gave Georgia Juice its name. Georgia Juice is what we use by far the most, it’s grape juice and brown sugar.

And I don't know why it works. I don't know what it is about it. I really don't care. It worked. It worked really well, and it worked better than anything else that we had. So, we had to rock with that, right? If science comes up with a better recipe, we're ready for it and we will quickly swap over to that recipe. But for now, Georgia Juice is all we have.

We've had these traps change. We've tried all kinds of things, but my guys are really, really smart. The things that they've come up with, because at first, we're thinking, what are you using as an excluder to keep out other things? Unfortunately, in my mind, I'm old-fashioned and sometimes there's casualties when you're fighting a war.

But my guys got to thinking. And believe it or not, an indoor pickleball is what we use as an excluder on the traps that we run today. And that pickleball, the hornets don't mind it at all. They will go through those holes – and it's got to be indoor.

See, these things, I never know. Indoor pickleball holes are bigger than outdoor pickleball holes. If you don't know what a pickleball is, you're alone. I had no idea what a pickleball was when we started this, but it works great and it keeps the lizards and frogs and fiddler crabs and squirrels.

It keeps out a lot of things, butterflies. Everybody always asks us, honey bees. Man, if I counted the honey bees that we found, we have 2000 traps up, if I counted all of them, we may have 5 or 6 honey bees out of 2000 traps in a week.

Honey bees are not attracted to it. I don't know what it is. I think it's the molasses in the brown sugar. They just don't like it, and we just don't see it. And we put these traps in bee yards and we don't have honey bees coming to it.

Amy

David, I have so many questions for you. First of all, I didn't know that there was a difference between an indoor pickleball and an outdoor pickleball. OK, so I think I need to see a picture of, you know, what your traps look like with these pickleballs.

I'm also shocked, I guess, to hear that honey bees aren't as interested in it, you know, and there may be something else there, I think, to look at as far as why the honey bees are not wanting – maybe it is molasses, or there's clearly something that they're not as interested in.

Maybe it's just because the hornets are, you know, coming over there and the bees see the hornets over there and they just don't want to be found around them. So that's all really interesting. I'm interested more in the actual traps and where you're placing them. So maybe, I guess, let's dig more into the luring, the swarm traps. So, you're using the pickleball as the entrance, and what is that attached to and how are you all, you know, actually placing those in apiaries?

David Williams

How do I describe the traps that we use? They have like a funnel on the top, but they're technically called bucket traps. They're not very big in size, and in other words, they fit in your hand, but they do have a funnel on top of them. And then they'll have a basin at the bottom that holds whatever it is, juice or whatever it is you're using as bait. You know, it's used for a variety of insects. Some insects you'll have to use a kill strip in it to actually kill what you're putting it. When we're using it for hornets, they fall in, they go down the funnel, they get in the juice and they can't get out.

It's just what we call a deadfall trap. They fall in and they love it. They love that juice. I think they get in it. They'll just be doing back strokes in it. Because of the funnel shape on top, a pickleball sits perfectly in that funnel.

Amy

So, David, you know, you told us about how you found five nests within that first year. Currently, do you know its distribution and where it's being found?

David Williams

We do the best job we can with keeping people up to date. We have a, we call it the yellow-legged ledger. The department puts that out. That's not in my wheelhouse. I don't do that. What I do is I look at the information that's submitted to it.

Our communications team keeps that up to date. We also have a Facebook page for the yellow-legged hornet, and we try to keep that map up to date showing where we're catching hornets and where we're finding nest. Now, you know, if I find a nest in your backyard, I can't put your address on Facebook and I can't put your address out there for everybody to see.

You may not want people coming through your yard looking at what's left behind. So, to protect your privacy, there is information that we can't show. But we do put the general area, right? In Georgia, we haven't seen that big jump. In Europe, some people say 40 miles a year, some people are saying 20 miles a year is how quickly it's spreading across in different countries over there.

We haven't seen that in Georgia. And I can't really tell you why that is other than we have traps miles out past where we're catching them, right?

In other words, if it does jump, and we do expect it, we keep looking for this jump to happen. If it does, we should detect it with our traps. When we first found out we had it, like I said, we didn't know where it was, so we put out traps in a wide area.

We run traps all the way down to the Florida line. I mean, it kind of makes sense. If it's in Savannah, it may be in Brunswick, it may be in Camden County, right on the Florida line. We didn't know that. We didn't know. So, we had to set out traps to kind of show us where it is.

And we haven't detected anything further South than say midway Georgia. And that goes all the way back to last year. I have to keep telling myself we've only been working on this for two years. It seems like 10 years to my guys. It really does.

It's only been two years we've been fighting this thing, but we have, we call it our back fence where we backed off miles further than where we're having detections. And we were actively running those traps as well.

It's negative data, right? But that negative data lets us see where it's at and where it's going to jump. They'll say, when do you expect to see a jump? We're expecting to see the jump in November. Why November? Because that's when the nest will disperse the queens and the drones.

That's our best guess. Now, there's a team from the Florida Department of Agriculture. They've been really helpful to us. They are doing all kinds of neat experiments. They're pulling samples out of our traps, out of our nests.

And one of the things that they're looking for today is they want to know when are these males going to start emerging? When do we expect that 10-mile jump to start happening? So, they're actually collecting every specimen that comes out of our traps in Georgia this year, about every month.

We box them up and we send them down to Florida and everything that comes out of those traps. We don't have time to do it. And the University of Georgia, they're running samples, they're doing their thing. We can't do it all, right? We all have to work together. And I'll say that about this yellow-legged hornet program.

It's been neat to see that part of it. The Department of Agriculture in Florida, the University of Florida, the University of Georgia, Clemson University, man, all of those guys have been in it from day one and working together.

We've had universities from all over the country that are sending people to Savannah. I mean, they're doing all kinds of tests with drones. Everybody says, why don't y'all use a drone? And it's funny to us, the first nest that we did find, the very first nest, we flew 3 different drones up to it.

It took pictures that tried to see how we can find them with a drone. We did a lot of days for that very first one. And I'll be honest with you; drones just aren't it yet. But there are people doing experiments with drones, and in the future, maybe.

And that’s another thing I tell your buddies are always, man, you're wasting time over there. You're not going to be able to catch up with it. And I'd say, my guys are smart. We know how hard it is to eradicate a species whenever they get established. I can't say it won't happen, but saying it's very, very difficult.

My team knows that. But wouldn't it be neat if we were the first people to do it, right? So, we're going after it hard as we can. The guys that are hunting nests down, they love hunting. They're squirrel hunters, deer hunters. They love it. And this is the ultimate hunt because nobody else has done it.

All of this stuff that they're doing, they're coming up with all these different techniques on their own. And I'm not a guy that looks for a chance to talk, but when it comes to talking about my team, I'm going to be there to talk about them because they're incredible. They're an incredible bunch of folks. They love what they do and they go after it every day.

Jamie

Well, David, I mean, I'm listening to you and you guys have really worked tirelessly to try to get on top of this issue. And a lot of this has to do with what you're saying. Once you find a hornet in a trap or you find a hornet at the apiary, then your guys work to figure out where that hornet is coming from.

And so, you know, you don't have to talk about the biology of the yellow-legged hornet. We did interview James Fulton from the Florida Department about a year or so ago. We've got an episode on the yellow-legged hornet's biology. But I'm curious, just from someone who leads a team that hunts these things, why are their nests so difficult to find?

David Williams

Man, that's a really good question. I'll tell you this, and this is just my rough numbers, right? At least 80% of them spend 100 plus feet off the dirt. In Savannah, they really like the tallest pine tree in the area, and it doesn't matter.

We've had them right next to apartment buildings in Savannah. We've had them in shopping centers in Savannah. Of course, we found them out in the woods. We found them on golf courses. But they like to be high as possible.

Doesn't mean that they won't build one under a bridge. We have found them on structures. We have found them under bridges and on side of buildings, but an overwhelming majority of them have been way up off the dirt. I guess that makes it difficult, right? We found one in a grill last year.

The guys were hunting, and it's almost unfair when we think we learned something. We're looking for this. We're looking for them to be in a tree. They're looking, we're looking for the tallest pine tree. We spent a week in the neighborhood looking for the tallest trees, looking for them to fly. For some reason, the only ones we can see in that particular neighborhood were around this one house.

So, one of my guys actually just sat in the yard of that house and just kept watching for them. Well, he finally figured out the hornets were going on to the back porch of the house, and the nest was inside their grill. It's almost like, it's unfair. We're playing hide and go seek and there's rules and you're cheating. You're not paying attention to the rules. Does that help give you a little bit of an idea why or how hard it is?

Jamie

It sounds very chaotic. It's a good description, David.

So, David, you know, as we're ending this episode today, I guess the last question we have for you is where is this all headed? You know, what do you think is going to be the future of the yellow-legged hornet? And what is your role in all of this?

David Williams

My role is to protect my people and to kind of be their cheerleader in a way, reminding them what the point is. It may not be that we eradicate it. It may not be that Georgia and South Carolina can keep it from spreading.

We are going after it that way. We are doing our best to keep it out of Florida. We're doing our best to keep it out of North Carolina. This is not the only species of Asian Hornet. There might be things that we can learn with this one to help for the next time.

Maybe we can learn from this, right? And I think we have. I think we've learned a lot in the two years that we've been fighting this thing. That'll help. And maybe my job is to slow it down and maybe let science catch up to it.

And if my job is to hold it back in the Savannah area until that beautiful research gets done, OK, then that's what we'll do. It's very important the beekeepers pay attention. Beekeepers are the key. If the beekeepers in Savannah and that area, if they're watching their hives and they report that hawking behavior to us, 100% of the time, we have found the secondary nest associated with that.

That's key. We're looking for 10 nests right now. We pulled out a map. We think there's 10 nests, according to the trapping data, that we were looking at the map yesterday and we're pretty sure there's going to be about 10 more that we're looking for. If there's a beekeeper close by that's got the hawking, man, that's one we can knock out really quick.

If there's not, then we have Sentinel hives that the Georgia Department of Agriculture owns and we'll move Sentinel hives in to the area, and then we'll watch for the hawking behavior on our Sentinel hives. That's key. South Carolina does not have that.

When we spoke to our friends in Europe, they don't have Sentinel hives. Sentinel hives have been very helpful to us. And they say, well, we haven't seen that big spread. I think it's because my team has done a lot.

To give you an idea, we have twice as many traps out in '25 as we had out in '24, twice as many and we're catching half as many hornets. The numbers are dropping in Georgia. I mean, that's what the data says.

The numbers are dropping in Georgia. That's not what our friends in South Carolina are seeing right this minute, though. They're kind of looking at what we were looking at last year. But if all goes well and South Carolina can turn it around, there may be hope for eradication.

I'm not giving up, I'll tell you that.

Jamie

Well, David, I really appreciate that you came on and shared with us today. It's going to be very valuable to our listeners, and I appreciate the effort that you and your team and your collaborators are putting into trying to eradicate this thing. So, thank you so much for joining us on this episode.

David Williams

Been my pleasure.

Amy

So, Jamie, we had an episode, I think it was episode 160, we did a Vespa velutina, the yellow-legged hornet with Dr. James Fulton here in Florida at the Department of Agriculture. And he kind of shared with us a little bit of background of the biology of what to look for, you know, when it came to Vespa velutina.

And I was happy to be able to talk to David a little bit today about just their experience of finding it and identifying it in Georgia. And, you know, I think something that I was really intrigued by was just the trapping efforts that they had. And so, I'd love to hear a little bit about your thoughts on, you know, trapping efforts. And, I learned that pickleballs are different.

Jamie

Well, I mean, David was basically making the point that, you know, when the yellow-legged hornet was found in Savannah that they needed to know where it was, right, they do that by putting out lots and lots of traps. He described it as a bucket trap with a funnel on top. Well, you know, if you're putting in the bait that they were using, the Georgia Juice, he referred to it as, if you're putting in that bait, yellow-legged hornets aren't the only thing they're going to be attracted to it.

I mean, heck, hanging a bucket in a tree with a hole in it, lots of things might go in there even if it wasn't baited. And he mentioned frogs and lizards and things like that. So that's non-target trap, right? They're putting up the trap to catch the yellow-legged hornet, but other things may show up in it. And so, they put the bait in there and they realize that they might be catching things that they don't want to catch.

And that's where trial and error showed the pickleball, you know, this plastic ball that's got holes in it, of a particular size. When you put that in the top of that funnel, then it weeds out a lot of things that shouldn't go into it. And yellow-legged hornets are still able to go in. Of course, they use that information to say, OK, we found yellow-legged hornets in these traps here.

Therefore, there must be a nest nearby. Let's go hunting for a nest. And so, they've got these trapping efforts where he said, what, a couple thousand, I believe he said, are deployed now. And

with those trap data, you can figure out where hornets are, but you can also, from year to year, figure out how fast or if they're spreading, and they're doing a lot of this work.

It's very tiring work, but they're working really hard to do that. And with this trapping information, it can shape some of the biology data that we have. For example, how early in spring are queens found, how late in the year do we see hornet drones, all of these things.

When do we start getting more hornets in the traps? Because that would suggest that the nests are growing. And you can use traps and other things like this to create this picture of the biology of the yellow-legged hornet.

Amy

Absolutely. I think another thing I wanted to kind of highlight from this episode was just the importance of, you know, the citizens and people being able to know who their contact is when they see something that's kind of out of the ordinary, right? I think he mentioned that the person who had found it, it was his first year beekeeping.

It was his first hive, and he just randomly saw that there was something that was, you know, not being very nice to his colony. I think it was funny how he described it, but you know, it's the importance of knowing, you know, if we're putting this call out for the yellow-legged hornet that, really, everybody, every citizen has their eyes out, you know, on this hornet and can make a huge difference and an impact. Otherwise, you know it could be missed, right? If it's not shared.

Jamie

Yeah, that was an interesting aspect of the story. The reason we even know about it in the first place is because that beekeeper saw something he'd never seen before and wanted to ask about it. And of course, it turned out that that something was the yellow-legged hornet. And I get a lot of those questions from new beekeepers.

You know, hey, this is happening in my colony. And fortunately, it's never turned out to be something as significant as a new invasive threat, you know, like the yellow-legged hornet. But, you know, in my years of beekeeping, right before I started beekeeping, is when Varroa was found in the US. So, just from the earliest days of my beekeeping, people discovered Varroa.

And then in the '90s, they discovered small hive beetles. And then, of course, with the explosion of colony collapse disorder and research thereof, we've discovered new viruses and there's been a new species of Nosema, just on and on and on. And now we've got the yellow-legged hornet. And it just takes looking. If you're a beekeeper, if you see something out of the ordinary, let someone know, take some pictures. It can be what is necessary to get on top of an issue before it becomes really a bigger issue.

Stump the Chump

It's everybody's favorite game show, Stump the Chump.

Amy

Welcome back to the question-and-answer segment. Jamie, I think I've got 3 pretty quick questions.

Jamie

Uh-oh. Pressure is on.

Amy

So make it fast. Just kidding. The first question that we have is an individual wondering how do they get an agricultural exemption? And so, I think, you know, we've got international listeners. I think maybe you could talk to us about what that even is.

Why would someone get that and how does someone get one of those?

Jamie

Well, Amy, you mentioned we have international listeners. I am very proud of the fact that beekeepers from over 70 countries around the world listen to us. Guys, out there, we so appreciate you listening, finding value in some of the things that we talked about. Thank you, thank you.

Thank you for being a part of Two Bees in a Podcast's family. So, what is ag tax exemption? Well, this is a thing about which I'm aware in the US, of course. If you're listening to us from one of the other countries, my guess is a lot of countries have similar things. They probably call it different.

But the best way that I can describe an ag exemption is some sort of program, usually at the state or local or county or city level, that will essentially reduce the tax burden on land that qualifies for agricultural use, maybe equipment, maybe production.

So let me give you an example of why this is very important in the bee world. When I first got hired at the University of Florida, this issue came up very quickly because there were people who wanted to keep a colony of bees on some property and then get that land, you know, essentially, classified as ag purposes for tax reduction strategies.

Like, if you just own the land and it's just sitting there versus if it's being used for ag, and this ag exemption is kind of straightforward in the cattle and produce and fruit and vegetable world. So

many trees of citrus per acre of land, so many cattle per acre of land, so much hay pasture per acre of land.

There are pretty good examples of all of those, but from the honey bee world, there's really no standard. Like, if I keep one colony on this property, does the whole property get exempt? Does some of it get exempt? Does only what the bee colony is sitting on get exempt?

And so that produced this really big kind of back and forth between tax folks here in Florida, beekeepers here in Florida, on what's enough. The Florida State Beekeepers Association and other groups got involved. And I'm saying all this background to tell you listeners out there kind of how I got involved with this.

The questioner says, how do I get an ag exemption? And I just wanted to explain to you what that is. And we struggled, Amy. We struggled working with the tax assessors and the beekeepers and ourselves and the Department of Ag. We struggled thinking about kind of fair and balanced ways to do this.

And essentially, here, at some of the places in Florida, they said, well, you've got to be trying to make a profit. You know, there might be so many colonies per unit area that you've got to keep, and then when you do that, it covers –and this kind of helped, but it wasn't a perfect system and it's kind of had some hiccups in application since.

And here in Florida, Amy, to make it trickier, it's kind of county, you know, municipality driven. So even if there's something that comes out at the state level, it's not uniform for every county. So, every county can elect to follow those recommendations and say, yeah, beekeepers, if you meet these qualifications, you'll have ag tax exemption.

But if you don't meet these qualifications, you don't. Well, the fact that it's county means some people say, yeah, we don't like that all. We're just going to do the way that we want to do. The questioner says, how do I get this? The answer is you've got to go to your agriculture tax assessor and ask them what are qualifications that they have in place that you have to meet.

Even though there's kind of a state best protocols for this, the counties are not obligated to follow them. So, they can kind of make up their own mind. And so, it's really important that you go to your tax assessor and work this out with your tax assessor. I know that's a very mundane answer, you know, I'm sorry. But it varies so much, Amy.

There's no one size fits all. This county may say 6 colonies per unit area. This county may say, well, you've got to have a honey house and you've got to make $10,000 a year. It really does vary that much. And Amy, I only know about Florida. There's Georgia and Oregon. And my point is, you're going to have to go to your tax assessor, and if you feel like you're not getting help there,

go to your state beekeeping association, because they're often ones who've been helping kind of fight this battle on behalf of beekeepers.

Amy

Absolutely. So, you know, the other thing is that here in the United States, we've got our states and then we have counties within those states. And you know, I'm all about extension providing resources. So, if you can find your local extension, your local county extension office, there's usually an agriculture agent there that can also help. And maybe they know some of the rules for the exemption as well.

Jamie

Good gracious, Amy. I went through that big long explanation that you said was going to be short, and then your answer was better than mine. Short, sweet, succinct.

Amy

It wasn't better. It was just short.

Jamie

No, it was better. It was better. I should have said go to your county agent. They can help. And you did. You nailed it.

Amy

You know, I said we were going to keep it short, but I'm even going to make this question longer. Jamie, I would love for you to share – I'm putting you on the hot seat, but I would love for you to share when you called in to get your ag exemption with your county.

Jamie

Yeah, it was kind of a funny thing. So, I moved to Florida in 2006, and I keep a couple colonies in my backyard. I own 7 acres, and for those of you listening outside of the US, I think that's in the neighborhood of three, three and a half hectares. Anyway, I had a couple colonies back there and I was curious what my county did.

So, I was pretty new, pretty new to Florida. And I call the local tax office and they say, well, you know, we don't have a set of standards. I'm like, OK, well, what do we do? He's like, well, we're going to follow the state recommendations. I'm like, well, who do I need to contact at the state? They're like, well, it's going to be whatever the University of Florida, you know, state bee person recommends.

Well, that person was me. So, I said, well, hold on just a second, I'll go get them. Of course, it was me and my point is that even in the county where I live, it was a tricky introduction to ag tax classification.

So, it's difficult. So, I've learned a lot in the process and realized it varies by county. And even though we put together some best management recommendations with a lot of input from lots of groups, it's still not universally followed, and it's still one of those things that comes up every year. To make a long story short, though, you've got to go to your local tax office because they're the ones who set the rules. And Amy, just like you said, the local county agents, no doubt, have been helping ag folks in their counties address these very issues with their own commodity so they're going to know where to go and what to do.

Amy

Yep, Jamie, that question, I was like, how do I get an ag exemption, I thought was going to be so short. And then, you know, you and I just working with each other for, you know, the amount of years that we've been working with each other, I'm like, oh, there's that story that I know that you can bring to the podcast. All right, so for the second question that we have is a question about pheromone research.

And gosh, there's so much. I probably just jinxed myself by saying, oh, they're going to be really short questions and really short answers. But the question is, what lab is doing pheromone research? And I guess the second part of that is, what kind of pheromone research?

Jamie

OK, I'm going to make my answer very short to this. First of all, there are a lot of labs where the scientists are doing pheromone research. So, rather than me go through all of them around the world, let me tell you how to do it. This is one of those instead of giving you fish, I'm going to teach you how to fish.

Amy

Are you going to tell them to Google it?

Jamie

I am going to tell them Amy to Google it, but rather than Google it, let me give you a better way to do it. So, Google, and I've mentioned this before on this podcast, Google has a search engine that deals specifically and exclusively with manuscripts produced by research laboratories. It's called Google Scholar.

So, if you open up Google and just Google ‘Google Scholar,’ you will get a unique search engine made and monitored by Google that just looks at the academic papers.

If you use Google Scholar and search ‘honey bee pheromone,’ it will pull up papers from around the world related to honey bee pheromones and it cuts out the fluff. It won't give you YouTube videos or blogs.

It won't do any of that. It's just research papers coming from academic labs. Google Scholar has a feature that you can select papers just the year that you Google it, or the last two years, or the last three years. If you do something recently, say the last five years, and look at those papers, the author list on those papers will be the list of the folks who do honey bee pheromone research.

And if you look at the most recent years, then you can suspect that those laboratories are still in business and they're still doing pheromone research. I say the most recent years because if you go back to papers published in the ‘80s and the ‘70s, those folks aren't still doing research anymore.

But if you set Google Scholar to the last five or ten years, then you're going to get a list of papers on honey bee pheromone research from authors around the world. And it's just really easy to find folks that way. And Amy, what type of pheromone research are they doing? That was your follow-up question. All kinds. Queen pheromones.

What do they do to colony homeostasis? Worker pheromones. How does that control bee behavior? Do drones produce pheromones? Brood pheromones? They're looking at lots of – they're even looking at pest pheromones, maybe Varroa pheromones, maybe small hive beetle pheromones, wax moth pheromones, from a control perspective.

So, there's really all sorts of pheromone types of research happening. It's really easy to find it. Google Scholar. Honey bee pheromone. Select recent years, and you'll get a suite of papers available for you to screen the author list and find authors and laboratories doing the work.

Amy

You know, I was in Iowa for the Iowa State Beekeepers Association last weekend, and I do a talk on resources for beekeepers. Some of my colleagues are making fun of me because it's just like all the resources that I can think of, and like all the QR codes on it. It's just a lot.

But it was funny because one of the slides brings up Google Scholar, and I think the audience just stared at me like, you're going to tell me that Google is a resource? Seriously? But Google Scholar is different.

Jamie

Google Scholar is different.

Amy

Yes, and people don’t realize.

Jamie

Yeah, Google searches everything. So, you get what you get. But Google Scholar searches academic papers, the stuff that, you know, my colleagues and I would be publishing. And so, it gets kind of right to the research quickly and cuts out the fluff.

Amy

I know. So, Google Scholar is your friend. And then, of course, knowing keywords and being able to put those in also makes a difference in your search as well.

Jamie

100%.

Amy

All right. Well, just Google it, I guess. OK. So, for the third question that we have, this is from Jeffrey, our podcast coordinator. We need to have a Jeffrey question, I think, in every Q&A moving forward. So, Jeffrey, if you're listening to this, which I hope you are because you edit our podcast, I hope you ask a question in every single Q&A moving forward.

That's your new task. All right. So, his question is asking about mad honey. And so, we hear about this hallucinogenic honey that is produced and I know a little bit about it, but I'll let you go ahead and answer it, Jamie.

Jamie

All right, Jeffrey, it's making me nervous that you're asking about hallucinogenic honey. Should we be worried, Amy? No, I'm just kidding.

Amy

I don't think so. You can’t even find it here, it’s fine.

Jamie

Right. Well, OK, mad honey. I love this. It's funny. When I was learning about bees in kind of an academic setting years ago, the faculty members who were teaching me about that, the other students would talk about, they would call it poisonous honey. And so, I didn't even know it was called mad honey.

But it's funny. There are different plant species around the world that produce nectars that are toxic and the compounds vary. There's lots of different things that these plants could produce that could cause problems.

Some might be problems for bees. You know, some of these we know that bees can have toxic nectar from jasmine or some Thai species, etc. But some of the compounds are toxic to humans and may not affect bees at all. So, if the bees collect it, they may not be impacted.

But we are impacted if we eat the honey. One of the plants groups that produce a toxic nectar for people would be the Rhododendron genus, right? It produces a particular type of toxin that I can't even pronounce the word.

It's like Grayanotoxin. And these have toxic properties to us and narcotic impacts, things like that. If you look up mad honey, it's almost certainly going to take you to the rhododendron group of plants that produce these nectars that bees collect that we eat and can be a problem for us.

If you get a lot of it, it can be quite problematic for us. It can cause nausea and vomiting. And he says, you know, Jeffrey asked specifically about hallucinogenic properties. So, you know, you really have to be mindful of that and conscious of it. And this actually dates back into history.

There are historical records of people getting sick from eating honey. And I would say it's not just rhododendron. There are other plant species around the world that are capable of producing toxic honeys. The good news is the vast majority of honeys that are produced have no impact at all. Most of us will never, ever be affected by this.

But there are some things out there that can cause these problems. And so, you know, his question is, why is it so poisonous and hallucinogenic? It's just that the compounds that are in it from the plant species from which the bees collected and made it, those are problematic for us. And that's why it's a problem.

Amy

I think there's a book called Mad Honey, isn't there?

Jamie

Maybe, maybe. If not, there should be.

Amy

Yeah, there should be. It sounds like a fun book name. All right. Well, listeners, those are the questions that we have for today. You know what to do if you have other questions for us. We love these questions. Keep them coming. We would not be able to do the Q&A without the questions that are coming in. So, we really appreciate everyone who gets involved and, you

know, if you haven't submitted a question and you're thinking about it, do it. I would encourage you to do it. So, with that, we'll see you next episode.

Hey everyone, thanks for listening today. We would like to give an extra special thank you to our podcast coordinator, Jeffrey Carmichael. Without his hard work, Two Bees in a Podcast would not be possible.

Jamie

Visit the UF/IFAS Honey Bee Research and Extension Laboratory's website, UFhoneybee.com, for additional information and resources for today's episode. Email any questions that you want answered on air to honeybee@ifas.ufl.edu. You can also submit questions to us on X, Instagram, or Facebook @UFhoneybeelab. Don't forget to follow us while you're visiting our social media sites. Thank you for listening to Two Bees in a Podcast.