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SPEAKERS

Stump The Chump, Amy, Jamie, Serra Sowers, Guest

Jamie 00:10

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 Dr. Jason Graham, who's the Program Director and STEM Educator and Entomologist at the Planet Bee Foundation, which is headquartered in San Francisco, California, as well as has a footprint in Pennsylvania. So he'll be talking about the Planet Bee Foundation, which is a nonprofit. So this gives us an opportunity to talk about the role of nonprofits in beekeeping and honey bee and native bee education. And we have the special link with Dr. Graham because Jason is actually a former Master's and PhD student here at the University of Florida. I've had the privilege of working with and knowing Jason for a very long time. So I'm excited about being able to share about his research and extension experience as an activity. So, Jason, welcome to Two Bees in a Podcast.

Guest 01:37

Thank you, Jamie, it's my great pleasure to be here. I'm excited to talk to you about what I've been up to since UF.

Jamie 01:43

Jason, I know you. I know you well, but our listeners may not know you. So the first question that we always ask first-time guests is if you'll tell us a little bit about yourself, and how you got working into honey bees or working with native bees as well. How did you find yourself in the bee world?

Guest 02:00

Great, thank you so much for that question, Jamie. So, I kind of have a checkered past with education. Through middle school and high school, I wasn't really interested in science or math or writing or school or anything at that point. My hobby was getting into trouble. And so I pursued that hobby, to the dismay of my parents. And eventually, I dropped out of high school, took about 10 years off. It wasn't until I was living near Newark, Delaware, and I was thinking, maybe I'll go back to school. I took a few classes just for the fun of it and I challenged myself to see if I could do school again. I did pretty well. And I took one class in particular that was a lot of fun. It was insects and society. And so it was the kind of the intro to entomology for non-entomology majors. I really enjoyed the course. I learned a lot. I was kind of coming up with more questions as I was getting answers through that class. And after that, I took a beekeeping class with Dewey Caron. And during that class, we went out, we opened up a hive, there was a lab portion of the class that I was, able to keep a hive going throughout the semester. At that point, I was like, this is my new hobby, no more trouble for me, I'm interested in bees. And I went along with that at the University of Delaware. I wasn't expecting to go on and get my Master's and PhD. I thought I would just end, get my bachelor's and be done with school and go back into the workforce. Dewey Caron suggested I check in with you in Florida because you were getting ready to start a lab, and I was thinking about maybe going for my Master's and PhD. But yeah, that's kind of how I got into bees.

Amy 03:52

I love Dewey Caron. He is so awesome. He's just the coolest person ever.

Guest 03:58

Oh, yeah, he came in with a ref shirt one time and did the waggle dance in front of all classroom full of college students, had the antenna on and everything.

Amy 04:08

That's so funny. Jamie, I was gonna say you're kind of cool, too, but Dewey's pretty cool.

Jamie 04:13

It's too late. You said I've never put on a shirt and done a waggle dance. Actually, I put on shirts every day. But I just didn't put on a shirt with the purpose of doing a waggle dance.

Guest 04:20

Right, right.

Amy 04:21

Oh my goodness. So as you're telling me the story, it's really funny just to think about Jamie in the early days of starting his lab. I know that, at the time, Jamie and Jason, both of you worked with honey bees and native bees, right? You were like the honey bee and native bee lab. Jason, can you tell us just a little bit about some of the research that you did at the University of Florida?

Guest 04:43

Sure, I'd be happy to. So when I got there and was getting ready to do my Master's, I was really interested in the diversity of bees. I was learning that there are 4000 different species of bees in North

America and each one has this interesting story, different life histories and strategies. I really wanted to dive into that for my research, but here in the University of Florida Honey Bee Research and Extension labs, I felt, part of it, I wanted to also work with honey bees and learn as much as I could about them as well. But yeah, for my research, I was going out and we were interested in small hive beetle and if it were building up in native bee colonies, like bumble bees, and then potentially being a source where they would move into honey bee colonies as well. I did some research along those lines, did some choice tests to see what small hive beetles were attracted to, how they were invading honey bee colonies and potentially bumble bee colonies as well. We looked at the yeast that small hive beetles carry around with them and found that it changes the yeast composition in honey bee colonies. But then, also, we're seeing that same changes in bumble bee colonies as well. So that was my work with the Master's. I worked with *Kodamaea ohmeri*, which is that yeast that showed up in colonies that had small hive beetles with them. We never found small hive beetles in bumble bee colonies, but had read that they were successful in bumble bee colonies in the lab. So that was something I wanted to pursue, was able to work with the USDA labs. And one time, we had a lab where I was dissecting a bumble bee colony inside the lab, and I had a poster up on the door, please don't enter. I had bumble bees and I had a suit on. There's bumble bees that can climb into the bee suit and sting you multiple times. So I remember one time, in particular, getting stung like 30 or 40 times probably by the same bumble bee that was just kind of running around in my bee suit. Let me know who was boss.

Jamie 06:54

And you're a better man for it, Jason.

Guest 06:56

I am, yes. Yeah, so that was my research for my Master's. And then for my PhD, I went on to look at solitary bees. So I saw a lot of these mason bee houses or bee hotels, things like that coming into the mainstream, I guess. And so I wanted to see, was it better to have these set out low or high? What types of materials are best for these? And how could these be used for research? So we developed a citizen science program, there at University of Florida, and we encouraged people to set up native bee nest sites in their backyards and report back with their results. It turned out to be a tremendous educational opportunity, I think, just getting people to understand that there are more than just the honey bee. These native bees are, in many cases, they're not defensive of their nest. So they're safe for using around classrooms and the general public without having to worry about stings. So, I worked with the solitary bees. And we found out that a lot of solitary wasps use these nests as well, and we're kind of like digging into that. We looked at the pathogen loads, so I collected native bees and native wasps to see if they were carrying any honey bee pathogens. I'm trying to think. There were so many aspects to the PhD, I'm just trying to remember all of them here. And I feel a little bit of the pressure with my advisor on the line.

Jamie 08:33

I was listening to you talk, I was like, all I can remember is just lots and lots of projects and lots and lots of work. So you were out in the field all the time doing work with native bees, nesting habitat, and all that stuff as a PhD student. And we're still getting publications out of those huge datasets that you have. So it was actually a really good time, Jason, I really enjoyed that. And it's neat because that leads

directly to my next question, which is after leaving UF, you decided to continue to pursue research with bees. But you did that at the University of Hawaii, where you moved to Hawaii to study the endangered yellow-faced bee. Could you tell us a little bit about that process, where you ended up and why, what you were doing and how you ended up working with the yellow-faced bee?

Guest 09:19

Sure yeah, so, the whole time I'm working on my Master's and my PhD, and my parents love that I found something that I love to do, but they're a little bit nervous, like, what are you gonna do? You're getting bees in college, what are you going to do after college and make a career out of this? So I'm a little bit stressed out, looking at what's available, what kind of opportunities are going to be there for when I graduate? I had someone send me an email saying that they were thinking about going for this grant that would support someone to do research with an endangered bee in Hawaii, and would I be interested? This was maybe a month or two before I graduated, so I'm also working on defending and all this stuff that goes along with a PhD. But I was very interested in it. Moving to Hawaii was going to be a big jump for me, but it seemed like the perfect opportunity. So I moved to Hawaii and accepted the job. I was actually starting that position as I would have walked across the stage at University of Florida, so I missed my graduation, but I was there in spirit. And I was able to land in Hawaii, I worked with the University of Hawaii. So I had a position at the University of Hawaii where I was a junior researcher, and I was going to be the lead researcher for the endangered yellow-faced bee work. It wasn't endangered yet, it was still just the Hawaiian yellow-faced bees. But they had been pushing legislation through for quite some time with the Xerxes society, and several other great people had done some amazing work to try to just get it to that point where they needed a bit more data to be able to consider it an endangered bee. So some of the research that I was doing was kind of feeding into that data so that it was able to become protected under the Endangered Species Act. So it was a great opportunity. I worked with, at first, Department of Defense funding, because they had found the yellow-faced bee on military land. And so they were thinking about ways to mitigate that. So I went onto bases and looked at populations there on the island. Then, I was funded by the US Fish and Wildlife Service and Department of Land and Natural Resources. We ended up finding these little populations of endangered bees. I spent a lot of time in my office on the beach of Hawaii, looking at these flowers and trying to see if I could find bees on them. I set up some of those native bee nest sites that I was working on for my PhD. I set up similar setups on the beach and would check them every day and observe the bee in its natural habitat and try to figure out what challenges it was facing there in the landscape. Sounds like a really difficult job, Amy.

Amy 12:26

I know. I was just about to say that.

Guest 12:30

Yeah, my dad came out to visit and I put him to work. I was like, "You're gonna carry the backpack and the water bottle, and I'm gonna carry all this gear, and we're gonna go out and look at bees." And so it was great to have him out and be able to share my new position with him. Yeah, great opportunity.

Amy 12:48

That's very cool. You know what? So Jamie and I have been interviewing beekeepers and talking about ways to generate revenue or just make a living with bees, right? I think sometimes people forget the research academia, nonprofit world and it's so fun from the education perspective, like you got paid to go out and look for bees on flowers, which is totally cool. And so it's been really fun to hear your experience of the transitions, going from grad school to working, moving to Hawaii and everything else. And so since then, you've moved to California. Is that correct?

Guest 13:23

That is correct. Yes. So my wife's in tech, and so she wanted to be in the Bay Area. We moved and I was kicking and screaming all the way from Hawaii to California, but I love it here now, too. I started out and there wasn't a whole lot of bee jobs. I was writing letters to all different universities and things like that, trying to figure out what I was going to do next, now that I was in California. I knew there was some great programs here. There's a lot of good work around bees happening here. But I was a bit far away from Riverside or Davis. I was kind of looking at what nonprofits were in the area, and I stumbled across the Planet Bee Foundation, a great organization, great group of people. It was started by a husband and wife beekeeping team that had kids in school and they were doing a lot of work. They'd often, as beekeepers do, be requested to come into the school groups and talk about bees. So they kind of pivoted from being a honey company to being an education company. It's a nonprofit, they would go into schools and share what they knew about bees. They'd already been doing this for seven or eight years before I arrived in California. They had already built up some good clients there in California and I was working as a volunteer with them to help manage some of their hives. One of their very first clients was Google. So start small, right? They had hives at Google. They have a blue team, red team, a yellow team and a green team. And each of those teams manages a hive. And they compete to see who can get the strongest hive, who can get the most honey, and then at the same time, they're kind of working together to learn alongside each other about bees and beekeeping. So I was able to work with them and some of our other clients here in California and really loved it as a volunteer for about four years before they were able to get funding and brought me on as a full-time employee. That's awesome. So, Planet Bee Foundation, I know that you were just talking about honey bees, but does it just focus on honey bees? Or do you also work with native bees as well? We also work with native bees as well. But it wasn't always that way. It had started out as primarily honey bees. They had done a little bit of education around native bees as well. And then, kind of as I joined the team, we've diversified much more into native bees. So, now it's almost a 50/50 split.

Jamie 16:05

Amy, I think the question you asked Jason just a minute ago is perfect. Jason, I want to kind of reemphasize that and kind of turn this into a little question about extension. A lot of people who have a passion for bees, they think to themselves, well, I've gotta go be a beekeeper, this is what I want to do. But you are illustrating, there's lots of different types of jobs. And we're talking to you here, kind of from a nonprofit perspective, where the goal of this nonprofit is just educate people about bees. And I think it's really neat that that you took your interests and said, maybe I'm not going to be a full time beekeeper, but instead, I'm going to be a full-time bee educator, and you found a nonprofit that supports that vision. And just like you said, I mean, if their clients are Google et al., then they jump right in, and you have a great opportunity to make a really big impact beyond maybe the small area where

you live. And so I want to blow up this conversation a little bit and talk about outreach activities that are offered by the Planet Bee Foundation. You had mentioned that the owners, the CEO, the founders, maybe as a better word, they were going and speaking in classrooms. Do you continue those activities? Are there other places beyond Google where you guys manage hives? Could you tell us just holistically about your approach at outreach and extension at the Planet Bee Foundation?

Guest 17:26

Sure. Yeah. So we do have hives many other places in the Bay Area. We have some hives at schools. We have a school, East Bay German International School, and that's an elementary school, kindergarten, I believe they do middle school and high school, but we mostly work with their K-5. We have three hives there and we go several times a year. We do some education there around those hives and we have done honey harvest at schools. We have another middle school and high school that we have hives at where the kids were able to come out and do a hive dive. We put bee suits on all the kids, they get it to go into the hives, and then, in their school cafeteria, we brought a honey extractor and they extracted honey and bottled it up and took it home to share it with their families. We have hives at Stanford University, we're getting ready to put hives in at Genentech, which is a pharmaceutical company here in the Bay Area. Cisco, we have hives, not on their property, but on the Guadalupe River Park Conservancy. So, sometimes we partner a community group up with a corporation, and all these funds that the corporations pay for us to manage and maintain those hives and do these workshops allows us to go into schools and help out nonprofits in the community, at no cost to them. So all the costs are being shouldered by these, large corporations that want to do good work in the environment. And this gives them an opportunity to do that, share bees and beekeeping with their employees and get into conservation of bees and things like that, but then also be supportive of their local communities for education and community outreach. We've done things such as stewardship kits, where these corporations will buy stewardship kits that we'll send into schools. Some of them are building native bee nest sites, so they get all the equipment to build a native bee nest site in the school, and we'll hop on a Zoom call and do that with them. Sometimes, they'll buy seed ball equipment, so we'll send out packs of clay and and soil and seeds and the kids turn that into these little seed M&Ms, where it's clay on the outside and soil and seeds inside, and they can use those and throw them into gardens nearby. We also do virtual honey tastings. So, I've done that with Epic Games and a few other tech companies in the area. I guess since COVID, a lot of these companies, the employees are working from home. So this offers a good opportunity for them to still get together and have that fellowship online where they're all tasting the same honey and having that similar experience. We dropship it to them. And then I go through a whole presentation on a Zoom call about how the honey is made and processed and talk about the seasonality of the different varieties of honey. It's a fun time.

Amy 20:37

Oh my goodness. My brain, I'm like, I have so many ideas, and I have so many thoughts, and what a great idea to do virtual honey tastings. I know some programs could do that during COVID because they didn't really have a choice, they had to do something like that. But it seems like you all were really on top of your game. So that's pretty cool to hear.

Guest 20:57

Thank you, yeah. We are kind of getting more into hybrid because it's time-consuming to go into a classroom. We need to go and get all the the tabling things, the educational tools and things like that, that we're going to bring, sometimes we'll bring an observation hive into a school. We love to do that in person. But sometimes, that could take half a day to visit one school. Whereas, going virtual, we can reach five or six schools in the same amount of time in these little 45-minute lessons and things like that from the computer. So we're kind of trying to balance that out now and offer more virtual where we can and still maintain those local in-person events as we can as well.

Amy 21:43

Yeah. So I actually had another question about just the logistics of partnering and collaboration at some of these bigger corporations. So can you elaborate just a little bit? I mean, how would one just say, "Hey, we're gonna collaborate with Google?" Right? So what does that look like, as far as logistics go and program planning?

Guest 22:01

Yeah, so it sounds a lot of the times, it's been these companies reaching out to us. Even in the case of Google, they were looking for something to do with beekeeping. They were interested in having a workshop or a training about around beekeeping. They went on and looked for Planet Bee. They used Google and found an organization that does stuff with bees that was local to them and brought Planet Bee in for that first lesson. Since it's grown into this bigger relationship where we were just recently invited to do a leadership lesson from the beehive for some of Google's exec circle, it's been fantastic. They've been wonderful partners. They've donated 25 suits. These are the, what, a long time ago, I would have said the Cadillac of bees suits, these are like the Teslas of bee suits here in the Bay Area. Those easy breeze suits that you don't start sweating in those right away when you put them on. They have the double layers or triple layer mesh thing. They've been donating those and so we're able to use those with our schools and local community organization hive dives and things as well. So it's been really fantastic. And logistically, so now, we may have someone contact us, like, for instance, Funko reached out recently and they're interested in putting hives on one of their locations. So if you're not familiar, Funko is the one with the bobbleheads. They have a bobblehead for just about every character from Disney to Nintendo to all these different little character bobbleheads. Do they do personalized bobbleheads because I have Christmas Gift ideas for 2023? They do. I was hoping for the MOU for us to put the bees on their roof. Maybe they can make a little beekeeper bobblehead. So we'll see if that happens. Great. But they reached out and asked what the logistics would be. They're in Washington, so not one of the states where we're presently in. But the plan is we go and we set things up for them, we get the hive started, we connect with a local beekeeper there in Washington that can help to manage and maintain those hives for us in the interim, and I'll be out once a quarter just to make sure everything is going well there. So yeah, logistically, we have so many organizations reaching out and supporting us that it can be mind-blowing, and a constant source of work, which is great. It's keeping me busy.

Jamie 24:40



Jason, I think it's really funny that you said Google Googled you guys to figure out all about you and ended up using you for their educational and outreach needs. So beyond that, how are some other ways that companies have found the Planet Bee Foundation?

Guest 24:56

Thanks. Yeah, we also do tabling events where we'll go to local events in California. Sometimes we're at the Oakland Zoo, sometimes we're at the Cal Academy of Sciences, or these different events where they'll have multiple partners from the community come and set up a table. There, we're basically interacting with the public, we're making seed balls, or were showing an observation hive, or showing how to make a native bee nest site. And while we're there, we're talking to those community members. Some of them have organizations or businesses where they're interested in bringing in Planet Bee Foundation, or sometimes we'll meet with up with a school teacher who's looking for resources, and we'll point them to some of the printable worksheets that we have online or we have the asynchronous lessons that we offer or the synchronous live lessons that we offer to schools. So those tabling or community events have been a great way to meet more clients and more people in the community that we can help out.

Amy 25:58

Well, I think all the work that you all are doing is just amazing. And it's a good thing to stay busy, right? There are just so many different projects that you're working on and they all just sound really, really fun.

Guest 26:09

Absolutely, yeah, I feel like I've found my perfect fit. This is a great organization to work for. I can continue to explore my passion, which is bees, and diversity and teaching, all wrapped up into one position. So it's fantastic. Thank you.

Amy 26:25

What other future plans do you all have for the Planet Bee Foundation?

Guest 26:30

Well, yeah, we have plans to kind of continue to expand. We started out in the San Francisco Bay Area. We recently received some funding, so about three or four years ago, we got funding with the Giant company in Pennsylvania and so that's led us to expand in Pennsylvania. They're supporting us to go into schools, for free, in many counties in Pennsylvania and some neighboring states. I'm just getting back from a trip to the Pennsylvania Farm Show, which is kind of the biggest agricultural show on the East Coast, a big conference, and they had 4H kids there brushing goats and feeding cows and so on. And I had a table up there where we were talking about bees as well, did a couple of talks there at the farm show. Our founder, Debra Gomaszewski, and her husband are moving to DC soon, very soon, and so we'll have a footprint in DC as well. They're interested in getting Planet Bee in the area around the Smithsonian and working there with some of the folks in DC who are trying to make change with legislature on bees and native bees and conservation things along those lines. So some of our future plans are to just continue to grow and serve the biggest communities that we can. We're trying to develop some certificate programs where beekeepers can become Planet Bee educators and then go

into schools and things like that with our training and all of our resources and support to be able to develop programs in schools locally for them. One of the bottlenecks we found is we only have five educators that are available to go into schools. So sometimes, we'll have more demand than we have availability for. We're hoping to train beekeepers, similar to the Master Beekeeper Program. But it's kind of a shorter, one-year type program where we have webinars every month. These would be live webinar webinars where folks could ask questions about some of these topics like classroom management. Sometimes a beekeeper may want to go into a school but may be hesitant because they're not sure, what if the kids ask a question that I'm uncomfortable with? Or what if they're being rowdy while I'm trying to talk? Or things like that, we're giving the beekeepers some strategies to kind of manage the classroom and to work well with the schools as far as developing MOUs to put hives on the schools and develop these honey harvest programs all the way through so that they can use this as an extra source of income for themselves, and then continue to spread good work about protecting our pollinators and why they're so important. We're also working with the Pennsylvania Department of Agriculture and the Pennsylvania Department of Education to bring more pollinator education into the Ag programs in schools so that we can come up with some innovations for agriculture. As you both know, honey bees are depended on for most of our agriculture. So looking at some of these other native bees as potential alternative pollinators has always been kind of near and dear to my heart. I think that's something that we should really try to get into so that we don't have all our eggs in one basket. And maybe some of these native pollinators could be used on commercial crops. So developing that out with students who are looking for these applied science project projects and problems to be able to come up with solutions for just feels like a natural fit for me. So just continuing to share our bee work and growing as much as we can, while continuing to support locally the best we can with the pollinator programs in schools and community groups and with corporations. So with native bees, we have native bees citizen science projects where people can use iNaturalist, this app where you can take a picture of any living thing and it'll try to identify it for you. And so we're using that. We have a project on that platform for bees. So if people take pictures of bees on flowers, it'll record that data, it'll give us a timestamp and a geolocation, and we're able to say this native bee was found on this flower at this time. And that helps us to give kind of a seasonality. For instance, like at Google or at Stanford, they would be able to use these projects as team-building activities and see who can observe the most bees, or who can build the most native bee sites, which nest sites are most successful, and things along those lines. So I am carrying through with that citizen science that I started at UF. I did some of that in Hawaii as well with the Bishop Museum. We got some funds from Disney Conservation Foundation, which supported that. So now, this is kind of my third citizen science project and we're excited to roll that out very soon as well.

Jamie 31:43

So Jason, this is all a really fascinating story. I think it's a great illustration of how one can have an interest in bees, do a lot of academic work in bees and then find their love, in this case, particularly, in education and outreach and extension. We're proud of what you've done. It's exciting to see your work at the Planet Bee Foundation and what they're doing to spread the news about pollinators in general, but honey bees and native bees specifically. So thank you so much for joining us on this episode of Two Bees in a Podcast and sharing about your experiences.

Guest 32:14

Thank you, Jamie and Amy. It's been an amazing opportunity to be here and talk with you. So thanks so much for all the great work y'all do.

Amy 32:33

Jamie, I sound like a broken record because I'm just like, every time we talk to a beekeeper or someone who's in the industry, or someone working with any bee-related thing, it's so fascinating because there are just so many different people, so many different opportunities, and it's just really fun to talk to people about their jobs.

Jamie 32:53

I was thinking about one of the things Jason was saying while you were making that statement, and it's this idea that, "My parents were asking me, What am I going to do with that degree?" A lot of people think that, I've got an interest in bees, I've kept some bees, so I guess beekeeping is the thing that I have to do, commercial or sidelinier or need to make money that way. But there's lots of other ways. And Jason just illustrates another example of how one can pursue their love with bees in a very unique way. Even if you're a beekeeper out there and don't want to do full-time nonprofit work, there's still an opportunity to do part-time nonprofit work. I think Jason and the Planet Bee Foundation, they really illustrate that well. So it's exciting to talk to him and hear about, yet again, another way that people can dive straight into their bee passion.

Amy 33:38

Yeah. And something else that he had kind of mentioned was that he had gone through academia, he worked for academia, and then he actually started volunteering with them. I feel like, of course, there's so many volunteer opportunities out there, but just to get involved with your local community, and especially if you're able to help just the local, wherever you are.

Jamie 34:01

Yeah, I like that. I like the fact that even the organization they're working with is expanding beyond local, but what's interesting is that they started in schools. I really liked that idea. I know that our program focuses heavily on adult beekeeper education because those are the individuals keeping bees now and have the issues that we need to help them with. But listen, I tell you, today's young generation is just being inundated with messaging about honey bees, beekeeping through programs like this, through nonprofits and even programs like ours, and I think it's going to create a wave of well-informed, good intentioned individuals who are going to have honey bees and pollinators right at the forefront of what they think about when they think about environmental stewardship. And that's really exciting to see.

Stump The Chump 34:53

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

Amy 35:03

Welcome back to the question and answer time. Jamie, we've got two questions specifically about ants, and then we have one question about bees.

Jamie 35:13

Oh, good. I'm not an entomologist, Amy. Oh, I had to say it.

Amy 35:18

Oh my gosh, I think you've said that in a past episode, by the way. That's an old joke.

Jamie 35:24

It was right there.

Amy 35:25

Oh, my goodness. Okay. So the first question is, what is your best recommendation for ants, specifically carpenter ants? And I will say, fine, it is about ants. But what's your best recommendation for ants that are a problem in a honey bee hive?

Jamie 35:40

Yeah, so this is a really good question. And fortunately, I have a good answer, but it's not an answer, Amy, that originates with me. It's an answer that originates with Dr. Bill Kern. So for the benefit of all the listeners here, here in our Department of Entomology and Nematology at University of Florida, we've got the benefit of having a faculty member named Dr. Bill Kern. He's down at one of our research centers in Fort Lauderdale, and he actually wrote a document called "Ant control in the apiary." It's one of our University of Florida EDIS documents. We need to make sure and link to this document in the show notes because, as you've noted, Amy, the first few questions are about ants. This document really, really, really addresses those questions well. For our listeners outside of Florida and from around the world, this document is also relevant to you. Everything that Dr. Kern put into this document is really relative to anyone struggling with ants in their bee colonies around the world. Alright, so Amy, to answer the question, the way that Bill teaches about ants in the aviary, is he says that ants are broadly split into two big categories. That would be the bee and brood eaters and the honey and nectar stealers. In other words, when ants are going to colonies or hives, they're going usually after one of two things. Either they're there to eat the bees or the brood, or they're there to eat the honey and the nectar. And the reason this is important is because you need to know what they're going after in the first place in order to treat for them later on. So for example, this questioner asked about carpenter ants. Now, I'm going to take the questioner at face value, I'm not really good with my ant species. I'm a honey bee guy. But, assuming that the identity was correct, if it truly is a type of carpenter ant, then carpenter ants can be brood and bee eaters. So if you're going to try to control carpenter ants, you would go down one road than if you are going to say, control the Argentine ant, which is a honey and nectar stealer. And so the reason I point this out is if it's truly a carpenter, they're probably there for bees and brood. They're wanting to eat the physical bees themselves. And Bill lists, in this document, how one would bait to control these types of ants. So baits can come in multiple different styles. There are baits that are kind of sugar attracted baits, which would attract the sugar-feeding ants. And then there are the ant baits that are more protein-derived to go after those ants that are eating the bees and brood. So if you look at

this document that I referred you to, you can scroll down to the section on what type of bait would work best for you. I always hesitate, Amy, to mention specific trade names because that can vary around the world and labels can change. But if you look in that document that we'll link in the show notes, it talks within the baits about how to bait either these kind of protein-feeding ants and ones that are going after bees or brood or the sugar-feeding ants, the ones that are going after honey or nectar. I will say ants can be using honey bee colonies for a third reason, and that is for shelter. In my own apiary, for example, before, I've had ants nesting up onto the lid of the hive, and things like that. And so you might have to take a slightly different strategy. But baits, especially toxic baits, are really good ways to knock out the ants that are visiting those colonies. Now, I mentioned, two, probably most beekeepers I know, rather than using toxic baits around their hive, which bees might be attracted to themselves, they go for ant exclusion, which is another strategy one can use for keeping ants out of your hives in the first place.

Amy 39:28

Yeah, Jamie, I don't know if you remember but we actually had Dr. Bill Kern on one of our OG, original podcast episodes. Do you remember having him? That was pre-COVID.

Jamie 39:41

Yeah, I do. In fact, when I was answering his question, and I'm looking at his EDIS publication while I'm answering the question, I'm sitting here going, you know, Bill talked about ants in the apiaries in one of our first episodes, our first season. So you guys could go back and listen to that one. There'll be a ton of information in that podcast episode, no doubt.

Amy 39:57

Yeah, absolutely. So, you just mentioned exclusion. So that actually takes me to my second question for today. The questioner has asked, is it effective to place aluminum cookie sheet pans coated with Vaseline placed upside down over concrete blocks to prevent ants from coming into the hives? Have you heard of this before? Do you know if it is effective?

Jamie 40:20

So, Amy, I've heard of things like this, and I will tell you that this is just a classic exclusion device. So again, I'm going to reference Dr. Kern's document through this. He devotes about a third of the document to identifying the ant, like I said early on, knowing which of the two groups of ants you have is going to dictate your control strategy. The second third of the document is all about baits. Are you attracting them to a proteinaceous bait or are you attracting them to a sugar bait? And then, which toxin do you use? And how do you keep it away from the bees? The third part, Amy, of his document is exclusion. And if you scroll down in that EDIS document about exclusion, you'll see hive stands of all types of configuration. Some of them are hives sitting on a little table platform that has a single leg and that leg may be coated with a particular product that's really sticky to ants or coated with Vaseline like the questioner is asking, or maybe the legs of the hive stand are sitting in a bucket of soapy water so that the ants can't get across that. So all of these exclusion methods can be very effective, in which case you wouldn't even have to treat ants at all, you just exclude them from your hive. And rather than going through all the strategies, I'll just point out that this document has a lot of different ideas for that. The questioner was asking specifically about a Vaseline-coated cookie sheet. For those of you out

there in the world who don't use that terminology cookie sheet, it's basically a baking pan on what cookies are often cooked, it's usually a thin piece of metal. The questioner is saying, "Hey, look, if I just coat one side of that with Vaseline and put Vaseline face down underneath the hive stand, maybe the ants can't go around it." That absolutely could work. It's definitely one exclusion strategy. But just know with exclusion, if colonies are located under a tree, or if there's high grass or shrubbery around the hive and the grass or the shrubbery or the tree limb is touching the hive, then ants can bypass your exclusion devices and get into the hive. So if you're going to use the exclusion strategy, the only way up into the hive would have to be past your exclusion device, which presumably ants wouldn't be able to do. So yes, exclusion is certainly one of those things you could look at. It's probably most popular with hobbyist beekeepers. Commercial beekeepers, I know, if you have a really bad ant problem with something like fire ants or something like that, there are often labeled products one can use that might be granular in nature or liquid in nature that you can use to kill the ants. But any chemical that you put around colonies, you're going to have to be mindful of protecting bees from it and you do that by following the label. So treatment for ants, as well as exclusion for ants, both good options. Have a look at this document because I really feel like it'll answer your questions in even greater detail.

Amy 43:09

Yeah, absolutely. I took part in a program, I was in the Dominican Republic in February, and we did a lot of site visits. And I just remember, they basically have those Styrofoam kind of poster board-type things. They would put that on top of their lids, and every time I'd go in and pull and pry that lid off, there would be ants everywhere. Like you mentioned, you're not an antomologist, and I'm not either. I don't love ants. So I totally understand from a beekeeper's perspective of just wanting to get rid of the ants.

Jamie 43:43

Amy, in the tropics, ants can be a huge problem for bees. Just like what you note, nearly every managed hive you open, there'll be an ant crawling around it or in it. I grew up in Georgia, and in Georgia, we had a really big fire ant problem. So bad, they would sit at the base of colonies, and if a bee missed the landing board, the fire ants would just disable it nearly instantly. So to make a long story short, they can be really bad. And here in Florida, specifically, they can be quite bad. Listeners around the world, if you live in a warm climate where ants are common, then exclusion devices or baits are really your best options. If you don't have easy access to chemical control, then exclusion is basically your option. So this EDIS document gives some really good ideas on how best to handle that.

Amy 44:27

All right, so for my third question, this has nothing to do with ants, but the questioner is asking if there's new research on how to install a package of bees. I thought that question was kind of interesting because I don't think I've heard anything but I would love to hear your thoughts, Jamie, on if there's new research on how to install a package of bees.

Jamie 44:50

Amy, you're spot on. It's just kind of one of those things, it's just so commonly understood in the industry that I'm not aware of any new insight or strategy for installing a package beyond the way that

we already do. So maybe I'll elaborate on that a little bit and maybe help the listener if they're asking, if they're struggling to do it consistently well. So for our listeners outside the US, there's a whole contingency of beekeepers within the US whose job it is to sell beekeepers packages of bees. You just get this screened cage with somewhere in the neighborhood of two to three pounds, usually, around three pounds of bees. Literally, you buy it. It shows up in the mail and you have to go to your post office, you pick up this screened package of bees, and in there, you've got all those bees and you've got a queen in a cage. And historically, if you look at a lot of the strategies for installing these packages, the books, the videos, etc, usually tell you to lightly mist with a handheld kind of pump sprayer the bees in that package with a little bit of warm water, a little bit of sugar water. You bounce that package gently on the ground and knock the bees down off the walls of the package, of the surface of the package and you spray the bees a little bit. And then you turn the package one way and you mist the bees with sugar water again, and then you turn it another way and mist the bees. The idea is you're getting all the bees a little bit wet with sugar water. Then, you take the lid off of that package and you gently shake all of those kind of sticky bees that you've moistened with sugar water or water into an empty hive body. That's the historical way that packages are introduced into hives. This is a really good way to do it if you're installing one package into one hive in your backyard because most of the bees will stay in that one hive. They've got no confusion, that's just where they are. But even in our lab at the University of Florida where we've installed 10, 15, 20, 30, 40, 50 packages or more in an apiary at a time, using this kind of spray and dump method can cause a lot of confusion. If you're dumping bees into a hive, the bees in those packages have no hive loyalty, they have no queen loyalty, they have no brood loyalty. If you go through, say, 10 hive bodies and you dump a package into each of those, you come back the next day, oftentimes, the hives on the end of that row are superduper strong and the hives in the middle of that row are really weak, which suggests that those bees drifted heavily during the package shaking process. I've seen some of the hives in the middle of the row be completely devoid of bees altogether because they've migrated to the neighboring hives. I've seen people who produce packages mist virgin queens and accidentally introduce virgin queens into those packages. So when you're shaking those packages into your hive, you've got these loose virgin queens running around, and they might lead a swarm and then when one of the packages swarms, three or four or five of them swarm. So you can get these mega swarms that basically sucks away all the bees that you just dumped into those hives. So I'm not a huge fan of the shaking package method if I'm introducing bees into five or 10 or more hives. So what I would do, in that case, is I do the slow release method, which I really find quite favorable. The way you do this is imagine that you've got a hive body with 10 frames. I remove five of those frames and put the other five in that hive body up against one wall of the box. So basically, you've created a hive body that's half frames and half empty space. Then, I would lightly mist the bees with either sugar water or water, the way I described earlier in that package. Then I would bounce the bees down gently in the package, take off the lid of the package, and then sit that entire package in that empty space in the hive body. Over the next few hours, they will slow release themselves out of that package onto the neighboring frames. And the next day I might come in, remove the now-empty package or mostly empty package, and replace those five original frames that I removed. This slow release has been a really good way to limit the chaos often associated with heavy drifting of newly introduced bees or those errant swarms of newly introduced bees. So anytime I slow release, I do it that way. I might even do it in the evenings so the bees don't have a lot of time to drift or to swarm and to cause all this chaos. They're working up against nighttime, so that can help. I also might reduce the

entrance a little bit to limit the flow of bees out of the nest in that kind of chaotic scene. As a final FYI, for what it's kind of worth, I personally don't like misting bees and packages with sugar water because the sugar water is sticky and it gets over absolutely everything. I tend to find the bees respond just as nicely if you mist them lightly with a little bit of warm water. I don't drown the bees. I just kind of mist them lightly and the whole purpose behind misting them in the first place is so when you open the lid of that package, they don't all just fly out it. It keeps that errant flight behavior from going all over the place. So maybe I answered that question a lot longer than the listener intended. But there's no new research. There are better ways to do it than other ways. So hope that helps.

Amy 50:26

Yeah, absolutely. So for our new beekeepers who are about to install their packages, let's summarize, Jamie. So for that slow release, you basically have the box, you've got the lid, and a lot of times they'll have that canned sugar syrup inside. So you take the lid off, you take the can out. Sometimes, they come with queens in a queen cage, and you leave the queen in the cage.

Jamie 50:50

I leave the queen in the cage, but I take her out of the package and hang her between two frames, which will give those bees in the package another impetus to move from the package into the neighboring frames.

Amy 51:01

Right. And then you just close it up and check back on it in a couple of days.

Jamie 51:06

I usually come back the next day, take out those packages, and there will be a few bees left in the packages. And when that happens, I just sit the empty pack or the nearly empty packages on the ground outside the hive entrance and they will crawl out or fly out and go to their new hive. But I don't like to shake because, again, the chaos that that creates can really result in colonies of unequal strength. Let's just put it that way.

Amy 51:31

Alright. Okay, so those were the three questions that we had for today. Don't forget to send us a message on our social media page or send us an email at honeybee@IFAS.ufl.edu

Serra Sowers 51:44

Thank you for listening to Two Bees in a Podcast. For more information and resources on today's episode, check out the Honey Bee Research Lab website at UFhoneybee.com. If you have questions you want answered on air, email them to us at honeybee@ifas.ufl.edu or message us on social media at UF honey bee lab on Instagram, Facebook and Twitter. This episode was hosted by Jamie Ellis and Amy Vu. This podcast is produced and edited by Amy Vu and Serra Sowers. Thanks for listening and see you next week.