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SPEAKERS

Guest, Amy, Jamie, Stump The Chump

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. This is Jaime Ellis with the University of Florida Honey Bee Research & Extension Laboratory. I'm half of the Two Bees in a Podcast host team, and it's my pleasure to be able to invite you to the UF/IFAS Bee College that occurs in Panama City, Florida, August 23-24, 2024. Early bird registration for that ends on June 28, and there will be a wide range of beekeeping topics for all beekeepers of every experience level that we will teach. We'll have lots of different speakers there. So Amy and I at our respective teams would love to host you at the Bee College in Panama City. We hope to see you there.

Amy 00:48

Hey, everybody. Welcome to this episode of Two Bees in a Podcast. Today, I am joined by Kathy Clay, a retired Battalion Chief Fire Marshal, Jackson Hole fire EMS, also a certified master beekeeper with the University of Montana, the University of Nebraska Lincoln, who is calling in today from Idaho. And today, I'm really excited to bring Kathy in because she's going to be talking to us about mental wellness and beekeeping. Thank you so much, Kathy, for being here with us today.

Guest 01:18

Good morning, Amy. And thank you, Jamie as well, for inviting me to be on your program today.

Amy 01:23

I am really excited to talk about mental wellness and beekeeping and some of the programs that you've worked with in the past. But before we get there, why don't you tell us a little bit about yourself and how you got into the beekeeping world?

Guest 01:34

You bet. As you noted, I am a retired Battalion Chief Fire Marshal from Jackson Hole Fire EMS in beautiful Jackson Hole, Wyoming. I hope you've been there, and if not, you need to come visit. It is a really lovely place in the country. In that position, I had 20 years in the fire service. As a Fire Marshal and Battalion Chief in Wyoming, I'm proud to say I'm the only woman that held that title or that has held that title in the state of Wyoming. We're not a big state, mind you, but still, I'm proud of that. And it was a great career. As I got close to thinking about retirement, my husband and I looked ahead and said, we need a place. We want to live close to Jackson Hole. It is one of the most wealthiest counties in the world right now. So we knew we couldn't stay. But we wanted to be close because our friends were in Jackson. So we started to look around and found a perfect place for us just nine tenths of a mile in the state of Idaho on the Wyoming border, only an hour south of Jackson. And we got 80 acres that we've got alfalfa on. We do hay here. We're right on the edge of the mountainside. So there's great forage, and the idea sparked after we got the place that maybe we should have some bees. It's a perfect place for them. And that's how we got involved in beekeeping. We started, like a lot of beekeepers do, reading "Beekeeping for Dummies." And that's what got us started.

Jamie 02:58

We always love hearing how people get into beekeeping because the stories are very unique, and yours is interesting as well. "I had 80 acres and thought, man, I should get some bees," I think that's, Kathy, a good way to get into it. Well, we brought you all to discuss a very important topic that, really, we hear about all the time now. It's definitely different now, more so than it was five years ago or 15 years ago or certainly when I was growing up. And that's about mental wellness. The interesting thing, the perspective that you're going to bring, is about the link between mental wellness and beekeeping, how beekeeping can help in that aspect. So everyone has different reasons for keeping bees, right? A lot of people are afraid to keep bees because of the stinging insect part, but some of us find ourselves to be very calm around bees. So let's link these two. What is out there to support this idea of mental wellness and beekeeping? What links those two important topics?

Guest 03:53

It's an interesting dichotomy, the fear versus calmness that we see once we start to get into bees. I took my years of firefighting and started to ask the question, "Why are more firefighters committing suicide?" COVID-19, of course, had a big impact on all of our mental healths, but firefighters especially were taxed under the fear and anxiety, especially at the beginning of COVID-19. I also attribute to this linking these thoughts together to the book, "Flow." It's written by Csikszentmihalyi. If you Google flow, you'll find it. He speaks about how important it is for our brains to have mental downtime. Essentially, this is a quote of his that I really liked that kind of puts it all together, "The self expands through acts of self-forgetfulness." And it also heals our mental anxiety, essentially, by having a place that we go where we're only thinking about one thing. Let me give you an example. The most popular and most used method of reaching that flow state in our mind is by reading. Reading is, worldwide, the number one place to go to enter a flow state. So that helps you understand what we're talking about. We'll be talking about a flow state. But clearly, as a beekeeper, we understand that as soon as we open that lid, there's 30 to 50,000 insects that aren't happy, because now we've exposed them to light. And then we pull out those rectangular frames of bees and put them through more stress. There's a lot of going on when you

open up a beehive. It takes complete focus and attention to work bees, and I started to link this is why we're feeling calm, because we are getting ourselves into this flow state to manage our bees, and it really does help calm us. We have to slow down to be able to work with bees. It's a really effective way to get into flow while we're working with our bees, and, you know, you feel it when you're finished, right? You feel that good feeling that you feel when you finished up working with your bees. You start to anticipate wanting to work with them again. So I started to make this link, right? If flow is a mental state that helps us mentally recover from stresses, and if all these programs across the nation, which most people have heard about now that are working with bees and veterans coming back from serving are working so well, then why couldn't something like this work for first responders? And I started to think, what's the difference between a veteran and a first responder? Our veterans have served, we thank them for that. They're back home and suffering from that post traumatic stress that they incurred while they were serving. Our firefighters are still on the line, and every day, they have the stress of those pagers on their waist belt just waiting for what the next call is. Trust me, I remember this. Now that I'm retired, the one thing I miss the least is that anxiety of "What's the next big call going to be?" So one of the things that I learned from this paper was Jeff Dale taught me that this moral injury is what firefighters suffer probably more than PTSD. The moral injury that something went wrong that I might have been able to fix but couldn't fix, or someone above me made a decision that I didn't agree with, but I had to follow because I'm subordinate to that person. So I started put all that together and thought, I believe firefighters could benefit greatly from the flow that we get into by keeping bees. And that's where I took this paper and did the research to be able to put all that together.

Amy 03:53

So Kathy, as you mentioned, there are a lot of veteran programs out there. For instance, we work with Hives for Heroes, and we've had them on our podcast before. They not only have a scholarship opportunity for veterans, but every single first responder in the entire nation can get reimbursed fully for taking our master beekeeper program. I feel like I have to say that one more time. Every single first responder and retired or active military member in the United States can receive a full scholarship just to take our master beekeeper program. Let's talk a little bit more about your interactions with first responders and beekeeping. What has that looked like? What have you been up to?

Guest 08:44

Alright, Amy, that's great. Let me segue off of what you did say and say that a lot of those programs are starting to invite first responders into their programs, recognizing the benefit as well. So that's what I do want to talk about is how do we get first responders into these beekeeping programs? And it's the recognition that they too are in need of that mental wellness that we get from honey bees, from working with bees. I think what's really important in going forward is acknowledging and seeing the success has been huge with the veterans program, and I applaud your efforts as well. I think we need to recognize that our first responders need this as well. It will benefit them too. And probably, the way to invite them is by having these veteran programs there. It's happening already that first responders are joining in those programs, but I think local bee clubs could be very influential in bringing in their first responders. When you think about firefighters and EMTs, our dispatchers, our law enforcement, when you think about the folks, they're very community centered. And a bee club, obviously, is very community located as well. I believe there's a natural influence between the two. I'd love to see local bee clubs reach out to their first responders and get them engaged. The thing about beekeeping that's advantageous for first

responders is that not only while they're serving can it help them, but also in retirement. Funny story I ran into at a big conference, another battalion chief, and when firefighters get together, of course, they can talk about firefighting, but he said to me, "So are you getting ready to retire?" And actually at that point, I hadn't even thought about it. But it is common that firefighters pick up beekeeping in retirement. And probably two of the reasons for that is that, as firefighters, we're drawn to fire, and guess what we get to do with our bees? We get to make fire in our smokers. So that's pretty cool for us firefighters. We're also drawn to fear, and anybody who's gotten that first box of their first nuc and opened the lid --

Amy 11:03

We all know that feeling.

Guest 11:04

Yeah, right? When you open up that that lid, every string of DNA in your body is screaming, drop the box, run, right? So the fear factor attracts us as firefighters as well as the being able to make fire. So I think it's very natural for a firefighter to want to have bees. I'm not asking that every firehouse in the United States should have a beehive on it. In fact, I think that's pretty unrealistic. It would be a great place for a lot of them. But nonetheless, what is realistic is for our local clubs to reach out to their first responders and invite them to come to a meeting, especially if they can invite them to come to hives, get them suited up and protected, and show them what it's like to get into a hive. I think that would be success.

Jamie 11:53

I think that's a really neat idea that beekeepers at local bee clubs would just go invite their first responders, firefighters, EMS, others, to come visit the bee club and then talk to them about beekeeping and even take them in the colonies. That's a really, really neat proposition. I really liked that. So I want to formalize this a little bit. A lot of what we're talking about is kind of informal efforts to get them involved. But what types of more formal programs can be implemented to support the linking of first responders to beekeeping for mental wellness purposes?

Guest 12:23

Thank you, Jamie, for that question. I do believe it needs to start with programs like the veteran programs that we have out there and just including first responders. If we can get that national message that it's not just about veterans, and certainly, it needs to be about veterans, but it also includes our first responders that are active out there on the line, I think that would be a good first start. Another great effort would be for a firefighter that knows about this to write some articles for firefighter journals. Certainly, one of my endeavors and quests. I haven't quite gotten there yet. But we need firefighters to start thinking about why this really is a great way to help their mental health, and perhaps, not even so much focus on beekeeping, but just focus on getting them to understand what the flow state is and how that is mentally regenerative toward their well-being. So I think that national recognition that firefighters/first responders have this kind of stress that's going on that a veteran brings home, that would be a great first step. And then getting firefighters to think more through national journals of fire journals would be another way to implement this and getting the message out to local clubs.

Amy 13:35

So Kathy, you are probably one of these people. But when I first started becoming a beekeeper, just like you said with firefighters, we can talk bees to anybody, you can talk fire to anybody, right? It's really contagious as far as us spreading the word. You suddenly turn into the crazy bee person because that's who we all are, the crazy bee person. So I assume that you've gone and you've shared with your team and the people that you've worked with in your local community about keeping bees, bringing them to the apiary, getting them hands on experience. I would love for you to tell us about some success that you've had with first responders and beekeeping. Tell us just a little bit about examples of people who you've roped into this world who have really benefited from the mental wellness of beekeeping.

Guest 14:19

You bet. It's been hard. I'm gonna tell you right now, I've gotten more looks of disbelief than I've gotten looks of "That's a great idea." So the challenge is there. Ana Heck is up in Michigan, you may know her name, and she does have beehives on top of a firehouse. She's the only instance that I know of this being successful. I do think it's going to take some work. Our little town of Jackson Hole unbelievably still has ordinances that prohibits keeping honey bees in town. So there's that step, right? I mean, we can't even start talking to our firefighters before we can get the step taken of the public acknowledging that's an old ordinance that needs to go away. The success is probably more in the future than it is in the present. This is a pretty new idea for firefighters to be engaged. This is a group of people that have stress every day that's unimaginable for anyone who doesn't do it, and we need to find more tools to help them. I'm throwing this in the toolbox of "Here's a tool that might work and might be helpful for certain amount of people." The successes for me have been limited and a little bit frustrating. If my town won't even allow bees, how am I going to get a bunch of firefighters that work in that town to be responsive, but nonetheless, there's always those challenges to work with. And I feel that success will happen. Probably the biggest success of this idea is that I got a 97% on my paper. So there you go. There's my success that I've achieved, and I'll keep working at it.

Amy 16:02

There you go. I will say, you've got to start somewhere, and there's a lot of potential for success. I can definitely see this happening. I've got a couple of thoughts that are just kind of random. But here, we're on a podcast, so why not? The other day, a police officer came in to the lab, and he was asking about just getting into bees, and he was taking over his father's property. His father was a beekeeper, he knew nothing about bees. Of course, as soon as Jamie walked through the door, I pointed at Jamie and I was like, "He's the guy you're looking for." And the officer thought it was pretty good. But we do have people who will just stop by our lab because they see the hexagons, and they are really interested in just learning more about honey bees. And so I think, absolutely, reaching out to people and inviting them is great opportunity. The other thing I was going to say real quickly was that I used to be a Master Gardener Coordinator. So I used to teach people how to grow vegetable gardens. And we were invited by the local fire department to stop by to help them figure out what they wanted their vegetable garden to look like. It was a really interesting meeting because I essentially did a site visit with them. We started walking around and firefighters got super excited. They were so excited to grow their own food, and they immediately wanted to turn it into a competition. I felt like that was something that was really great is the camaraderie that they had within their teams. And then, of course, maybe you could just

throw in who could get the least amount of stings for that week or something fun like that. So anyhow, those are just kind of my two cents.

Guest 17:36

We are a very competitive group. There's no question. The best way to get action is through competition with firefighters. There's no question about that. So that's a great idea. One that you could take to build a program, there's a lovely collaboration that goes on with master gardening and beekeeping. It's an obvious route to take to be able to promote bees and the advocacy for bees. I need my master gardeners in my local town to get along the side with me so that we can get these local old ordinances to go away. People still are afraid of bees. Even though they're in their backyards every day, they are still fearful of the idea of bees in someone else's backyard. So there's a lot of work to be done. But when you think about the mental health and wellness as a hive product, I do believe that we have a topic that needs to be examined more thoroughly and brought to more people that can benefit from the Mental Health Awareness.

Amy 18:39

Absolutely. All right, Kathy, as we're ending, is there anything else that you'd like to share with our listeners? Thank you very much, Kathy. We loved having you on today.

Guest 18:44

I really appreciate you all letting me be on the podcast, and I love the fact that you know more people will be able to think about this. If they're interested, they should get that book "Flow." Mihaly Csikszentmihalyi is the name of the author. It will introduce you into the world of where we need to take our minds to be able to heal from the stressors that we get through living through this life, and in a beehive is probably one of the best places for me. So I hope people will understand that not only are we getting honey and wax and propolis, we're also getting some mental health and wellness from keeping our bees. Thank you so much, Jamie and Amy, for letting me be on your podcast.

Amy 19:36

I'm excited for the potential of the successes, Jamie, for first responders in beekeeper programs.

Jamie 19:41

Yeah, I agree. I think that exactly what Kathy said, bees can do for people. They really do for people. She called it being "in flow," right, apparently from this book that I've not read, but I need to go read. But, athletes would call it being in the zone in some way, when you just start, you kind of get locked in and you don't hear or do anything else. And that's the way I described beekeeping. And once I get into a colony, I feel like I'm just in the zone, it doesn't matter if it's 10 minutes or 10 hours, I could just do it and do it and do it. And it really does relax me. And I can sympathize with a lot of things that she said, linking those to how something like that can be good for you, not just a good hobby, but actually physically good for you.

Amy 20:25

We talked about this in the episode, but just the different veteran programs that are out there, I do think it's a great idea to include first responders. So this is kind of my call out to maybe some of those

organizations to also include the first responders in there or start your own nonprofit organization focusing on first responders. I think that, again, there is a lot of potential to have really great impacts on the mental and physical well-being of first responders and veterans and people who help people.

Jamie 20:53

Yeah, and I mean, you and I talked about this off the air before we came back to do this little outro here, which is she's mentioning it from an EMS/first responder/firefighter/policeman perspective, but we've also already had guests who've talked about veterans, etc. So this is an emerging theme across a lot of disciplines. And honestly, I could see it working for anybody who's in a stressful job, which would probably be a lot of people, right? So a lot of jobs are stressful. So I think beekeeping is just one of those really good hobbies that doesn't just give you honey or pollinate your backyard garden and actually can be good meditative for you. I think it's so great that we have, yet again, another example of how that could really help people in the long run in just many, many different ways.

Amy 21:38

Okay, Jamie, it's time for us to get off the podcast, out of our offices, and go keep bees.

Jamie 21:43

I'm game if you're game.

Stump The Chump 21:53

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

Amy 22:04

Welcome back to the question and answer segment. Jaime, the first question that we have, someone has been using -- someone, I'm sure many beekeepers out there -- been using OA vapor for a couple of years now. They have not had to use or they haven't used any other miticides. So they've just been using an OA treatment. OA is oxalic acid for many of our listeners out there. They're wondering what additional treatments can they use that's not temperature sensitive and can be used with honey supers on?

Jamie 22:35

Yeah. So this is a very important question because beekeepers want to be able to control Varroa even when nectar is coming in and being converted to honey. They want to have an option. So I've got this dilemma with the way we do the podcast. Amy, you and I are recording this podcast in April of 2024. It will probably be released another month or two even after this recording, and people may be listening to my answer 2, 3, 4 years from now, maybe longer since the podcast tends to stay alive forever. So I hesitate to say, "Here are the treatments that are available for use with honey supers on," or, "Here are the treatments with temperature restrictions," because by the time someone listens to this, those recommendations may be out the door or those treatments may not be available or new treatments may be available. So rather than point out specific treatment options, what I will say is that the answer to both of those questions, again, the question was what can I use when honey supers are on and what are ones that are not temperature sensitive? The answer to both of those questions will be on the label of every registered Varroa-cide. You can look at your equipment manufacturers Varroa-cides that they

are selling, the ones that are registered that are available for use. At the moment you're listening to me answer this question in the podcast, just go to your equipment supply catalog, look at the Varroa treatment section, look at all of those options that are available. Then you can do internet searches for the labels for each of those products even before you purchase them. Those labels are online so you don't have to purchase a product to see the label yourself. You can do internet searches for them, and you can read those product labels and see what they say about honey super presence or temperature range. So it's a really easy thing to do, and it's how I would answer this question for you to make this answer a little bit more timeless, so that you can look it up, regardless of when you're listening to it. I will say another good resource that I often talk about on this podcast is the Honey Bee Health Coalition's guide about tools for Varroa management. That guide is kept up-to-date, and they often summarize the very answers to the questions that you are asking as well. So you can always go to the Honey Bee Health Coalition's website and check that out. So again, just to make my answer succinct, I would look at the products that are currently registered for use against Varroa. I would search their labels, their product labels online, and the product labels will have the answers to both of those questions.

Amy 22:36

I bet you, Jamie, that 95% of our listeners probably could have guessed that would be your answer.

Jamie 25:20

Yeah, you say that. We get lots of emails behind the scenes that we don't answer on air, we just answered directly. And if they're ever about treatments, "I know you're probably going to say, check the label."

Amy 25:32

And they're right.

Jamie 25:35

Our answer back is, "Great question. Check the label."

Amy 25:39

Exactly. We've been doing this podcast for five years now, which is kind of crazy to think about. But I think people are starting to get that takeaway, you know, read the label. The label is the law. I want to say that we're doing a pretty good job of sharing that information.

Jamie 25:51

Well, if we're getting that message across, we're winning. People are doing that for sure.

Amy 25:57

Definitely. Okay, so the second question that we have is related to CO₂, and they're wondering if anyone's looked at CO₂ as a way to kill Varroa. So I think people are starting to talk about CO₂ in their colonies. So I would love to start with that first, just what is the point of using CO₂ in your colonies, and then we can kind of get into the research as far as whether it kills Varroa or not.

Jamie 26:20

So there has been some research on CO2 as a possible way to kill Varroa. So that would be raising the carbon dioxide levels on a hive to possibly kill Varroa. I said some with an emphasis on some. It's kind of like early stage research looking at the possibility of using CO2 to kill Varroa, I think the catch with CO2 is going to be that it can also be harmful for bees, and so you've got to be able to raise it to a certain level that would cause the Varroa to die or fall off the bees etc, without also causing the bees to have a problem. And I think that's going to be the principal issue with CO2 control for Varroa. I do know there are powdered sugar shakes, there are soap washes there, alcohol washes, all used to wash adult bees and collect Varroa. We've also used CO2 for that very purpose before in the past. But I think it's a long way, potentially, from having the level of research necessary to determine if it's going to be a viable control option for us. So yes, people have looked at it, maybe even we'll continue to look at it in greater amounts in the future, but I just don't think we're there yet to be able to make recommendations on its use.

Amy 27:34

Okay, so then I've got follow-up questions on that because I have a feeling that our beekeepers are gonna have follow-ups as well. So just to clarify, you're saying that CO2 is a method to monitor for Varroa like as you're sampling and doing a monitoring. But then you're also saying that there's early research that's being done on CO2 as a way to kill Varroa in a colony. I guess my two questions, the first one, was I right in saying that CO2 can be used for Varroa monitoring? And then the second question that I have is, how would someone use CO2 to kill Varroa in an entire colony?

Jamie 28:09

Yes. So honestly, Amy, I'm very grateful that you asked these follow-up questions because you're keeping me out of trouble. So yes, we do not use CO2 as a method of monitoring for Varroa here at the lab. We use alcohol washes or powdered sugar shakes, the traditional things that folks use. The reason we have used CO2 to collect Varroa off of adult bees is we have tried to do laboratory rearing cultures of Varroa. And when you powder sugar wash Varroa off of bees to try to keep them alive and then bring them into laboratory culture, we wondered if that might have some detrimental effect. When you manually collect Varroa off of bees, we worried about detrimental effects. So we've used CO2 to try to get living Varroa off of bees before so that we can see if that helps them perform better in our in vitro rearing systems. And so it's not something I would recommend that beekeepers use for monitoring for Varroa. So that's the answer to the first question. Your second question is how would one raise the CO2 levels in a colony? That's a great question. And the research that I've seen, scientists essentially plugged the entrances of a hive in kind of a winter type situation, and they were doing this, I think, in a cold storage situation where the CO2 levels were raised by a lot of colonies collectively producing CO2 in a unit, and when they restricted the entrances in these circumstances, they were able to find that colonies that had higher levels of CO2 correlated with lower levels of Varroa. And in this particular study, it's not something I believe that they were manually raising the CO2 levels themselves. They were able to look at correlations between CO2 levels and Varroa levels. So to answer your question, there are ways to administer CO2. You can you can purchase CO2 tanks, CO2 canisters. You could pipe that into a hive, the hive would have to be completely sealed tight so that you're manually able to raise those CO2 levels. But I would argue it's such a delicate thing that you risk a great impact on your bees, that no one listening to this podcast, no beekeeper should try to do that themselves until we know

more about it. I think part of the reason that researchers aren't gravitating towards this, at least at the moment, is that it's a real delicate balance between Varroa CO2 levels, control levels and bee control levels and you don't want to hit that balance.

Amy 28:15

You're welcome.

Jamie 28:45

Right. That makes sense. So for the third question that we have today, Jamie, there are different feed additives that beekeepers are using today. The additives you can mix into sugar water, or I think some of them maybe come in a fondant type form. The questioner is asking, are these additives added to honey? Do they end up in honey? Do they move around the colony? And are they bad for us as far as the consumption of the additives, if they are indeed in the honey? Well, this question or this series of questions make me a little bit anxious to answer because the answer is going to make someone upset. So I'm going to make some broad statements about this. The question is asking about additives. Some people might call them supplements. A lot of these are essential oil-based or based on other types of things that manufacturers have determined, somehow, are good for bees, and they're either delivered through sugar syrup, pollen patties, directly into hives, feed additives, feed supplements. That's the basic premise. And so there are a few of these, and I'm not going to go over each one. And what we know about each one, I'll just make some general statements, a lot of what we know about these products come from research either conducted by the companies directly, or a couple of research projects here and there that may have tested these things. So let me just make a general statement, which is we don't know a ton about these things. We know that a lot of beekeepers use them. We know a lot of beekeepers believe they're seeing great benefit. They think that it's worth the money, that colonies are looking better, however, that is determined, more bees, more brood, whatever. But all of that's anecdote, right? And I do know there are a couple of papers here and there where some of these products have been tested directly. They might find such and such a result. I also know there's a couple of papers that counter those claims and may have found something completely contrary to what was proposed early. I would say the good news is there's no clear evidence that any of this stuff is bad for bees, right? So, maybe, in the very worst, it's neutral. But there might be some benefits that bees get out of these things as well. I will further that statement by saying there are some things in the bee world that we know a lot about. It's been tested by multiple laboratories, maybe years and years, maybe a decade or longer. To give you an example, we know amitraz kills Varroa. We know how it works. We know about Varroa developing some resistance to it. There's just a lot of labs doing this, but there are significantly fewer labs looking at the impacts of these additives or supplements on bees. So oftentimes, the availability of these things proceeds the science. There's some science, but not nearly as much as there are for some things that we know a bit more about. And so what are my general recommendations to beekeepers regarding using these things? Well, I don't have any problem with people trying them to see if there's a benefit. Maybe they see that they're doing what they're advertised to do, maybe their bees do improve. It's definitely worth a try. But I'm a scientist, and by default, that makes me a skeptic unless there are mountains of data to overwhelm me. I would say, for me, personally, the jury's still out on a lot of the broad claims made by the manufacturers of some of these products. The questioner is asking specifically, do these things show up in honey? If they do, is it bad for people who consume that honey? And the truth is, we just don't know. I mean, from a human health

perspective, I've not seen any research on that. And I think the manufacturers would probably counter that claim with saying, "Well, these things are natural products. It's just stuff that occurs in nature," and things like that. And I just don't know. That's outside of my realm as a bee scientist to know how that stuff moves through colonies, but more importantly, how it affects humans. And the questioner said, do they really do anything for bees? Well, a lot of customers think that they do. So I feel like the next five or 10 years, there's going to probably be an explosion of research, kind of third party explosion of research on these very topics. I think that we will know a lot more about them. So I know it sounds like I'm waffling and not giving them a strong endorsement. I think it's more me saying I just don't know because there's not enough data to convince me one way or the other at the moment. I think we'll get there. I just think we're not there yet. That doesn't mean they don't work. It just means I've just not seen the overwhelming data to point one way or another at the moment. We just need more research.

Amy 35:06

We just need more research. That should be in our signature, I think, in our email. What do you think?

Jamie 35:12

I think that would be wise.

Amy 35:14

All right, beekeepers, thank you so much for your questions. Don't forget to ask more questions. We love having your questions. Send us an email or send us a question on social media pages. Thanks for listening to today's episode. This episode was edited and produced by our podcast coordinator Mitra Hamzavi. Thanks, Mitra.

Jamie 35:42

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.