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SPEAKERS

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

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.

Amy 00:51

Hi, everyone. Welcome to this episode of Two Bees in a Podcast. Today, we are joined by Dr. Miriam Bixby, a research associate in the Department of Biochemistry and Molecular Biology at the University of British Columbia in Vancouver, Canada. And today, we are going to talk about a publication that she came out with called the impacts of COVID-19 on Canadian beekeeping, survey results, and profitability analysis. So, Dr. Bixby, thank you so much for joining us today.

Guest 01:23

My pleasure. Thanks for having me on.

Amy 01:26

So can you tell us a little bit about yourself and how you got into this research? I'm really excited to hear about the impacts of COVID and some of the survey results that you have.

Guest 01:35

Sure, of course, yeah. Actually, my background is not in bees at all. I'm an environmental economist, and I had just completed my doctoral dissertation in carbon sequestration and biodiversity. My supervisor was working on a bee health project as an economist with Dr. Leonard Foster, I don't know if

you're familiar with him, out of the University of British Columbia in Vancouver. There was an opportunity for me to do some postdoc work with him so I started that, and that was about 12 years ago. And we are now on our third large-scale federally funded bee project. And it's been amazing working with this incredible group of scientists every day who are so patient with me as I ask my millions of bee questions.

Jamie 02:17

So the important question is, have you become a beekeeper yet?

Guest 02:21

You know what? I think about it every spring. I think I'm going to do it and then life takes over and I haven't yet. But I do want to. That's my goal.

Jamie 02:29

Well, great. So for you listeners out there, I am hoarse a little bit. So that's why my voice is different. But we'll push through this. Alright. So, Miriam, you published this manuscript Amy was referring to a little bit earlier through which you're reporting the survey that you conducted on Canadian beekeepers and the challenges they faced during COVID-19. So could you tell us a little bit about the project, the background of that project, what you were looking for, and what you ended up finding?

Guest 02:55

Yes, absolutely. So we actually initially had not planned, obviously, to do anything on COVID because we started our bee project in the fall of 2019 before this even happened. Our project was looking at developing diagnostic tools to support Canadian beekeepers to identify and accurately diagnose stressors that their bees had been exposed to. So our first spring would have been 2020. As we were preparing for our first field season, it became really clear that our beekeepers were struggling with the impact of COVID. And we work with quite a number of beekeepers, both just in the community as well as on our project. And anecdotally, it was becoming clear that there was a real crisis going on. So we pivoted our research to look into the cause of the crisis and try to understand how the effects of a pandemic were influencing colony health and ultimately, profitability, which is what I work on. So in the summer of 2020, we surveyed over 200 beekeepers ranging from backyard hobbyist beekeepers to large-scale commercial beekeepers. And the survey represented about 2% of all Canadian beekeepers. In responses, it was great, responses came in from all across the country, so all the west coast all the way over to the east coast. So to give some context in Canada, commercial beekeepers rely quite heavily on temporary foreign workers who come to work in our backyards for the spring and summer. And they mostly come from Mexico, Nicaragua, and the Philippines. So over 40% of beekeeping operations, predominantly commercial ones, hire temporary foreign workers in Canada each year, and that amounts to almost 3000 temporary foreign workers arriving in Canada to work in apiculture in the spring. The majority of these operations also rely on imported bees to sustain the colonies. We have a northern cold climate, a long winter. So beekeepers bring in queens from the US, Chile, New Zealand, and Australia and packages from Chile, New Zealand, and Australia every year. So just to give some idea of the numbers here, in 2019, Canadian beekeepers imported over 235,000

queens and over 41,000 kilograms of packages. So, obviously, when commercial air travel came to a halt in March 2020, so did the arrival of both the labor force for agriculture and bees, because all of the bees, as well as the workers, obviously, come on these commercial air flights that had been canceled. So due to that international flight ban, which took effect, I believe it was March 13, in Canada, 2020, there was a significant impact on beekeeping. So right away, there was a significant decrease in the number of bees coming in. So I believe it was about a 70% decrease in packaged bees coming in that spring compared to the year before. And there were over 22,000 queens that did not arrive that had been ordered by Canadian beekeepers, as well as temporary foreign workers, obviously, were unable to arrive. The vast majority could not get here. There were some efforts by the Canadian honey council to arrange for charter flights and a couple of beekeepers, a fraction of beekeepers arrived on those flights. But again, that was just a very small percentage of the temporary foreign workers who could come in. So in Canada, the spring, obviously, is the most critical time for colonies to build up because our bees don't come out of winter until even mid-March in some places, even in early April, which is probably funny to you living in Florida. But for us, there's still snow here in a lot of parts of the country in March. So at which point when these bees do come out, they're managed really quite aggressively to have adequate build up for particularly early pollination contracts such as blueberries, and obviously for honey production. So beekeepers in 2020 had to really pivot quite significantly to leverage as many local bees as possible, trying to increase local breeding projects, trying to make more splits. But without the labor to manage the bees and with fewer bees, the industry really struggled. So in our survey, we realized how much they were struggling. The results showed us that over 90% of beekeepers who traditionally hire temporary foreign workers had delays or cancellations. So what happened for a lot of beekeepers, we realized with our reporting, was that beekeepers, I think like a lot of us, believed that the pandemic would sort of blow over in a couple of weeks. So they delayed hiring local workers because they thought, probably what will happen is the flights will start up again, the international labor force will be able to arrive. Obviously, when that didn't happen, they eventually pivoted, and over 75% of the beekeepers who had temporary foreign workers delayed were able to hire local workers, but there was a bit of a timing gap, so a gap between when the workers traditionally would have started working and when they eventually, either the temporary foreign workers could arrive on charter flights and they had to quarantine for two weeks, so when they could eventually start working or when the local workers could start working. So there was this timing gap that happened, which was about an average of six weeks, which is a very significant amount of time in the spring in Canada when you're trying to build up your colonies. What also happened was that the temporary foreign workers who traditionally come in and work are very highly skilled in apiculture, and because these local workers were hired, sort of last minute, and did not have the same skill set, the beekeepers reported quite a significant productivity gap. So over 90% of the beekeepers reported that that productivity gap was very significant to how much labor was able to be done in that spring and summer of 2020. There also, of course, was the delay and cancellation of bee arrivals. So put all these things together, combined with the fact that health protocols were put in place, obviously. So things like personal protective equipment had to be purchased by the beekeepers, which increase their costs. Social distancing was actually very interesting. I learned this in our survey was that, of course, traditionally, you have three or four big beekeepers piling into the back of a truck to go out to the bee yard. But with social distancing, that one truck to the bee yard now was two or three different vehicles going to the bee yard. The other issue, of

course, was that in some of the housing accommodations, COVID outbreaks would happen, which then would mean, of course, a lack of labor again, increased costs for the beekeepers. So all of these things together meant fewer colony interventions, less colony buildup overall, and reduced colony output and ultimately, reduced revenue and reduced profit for the beekeepers. Sorry, that was a long-winded answer to your question.

Amy 09:27

It was a long-winded great answer to that question. Honestly, there were so many things that you were just talking about. In the spring of 2020, we thought that it was going to be over in six weeks, right? And so just waiting and waiting and waiting and then, here in the United States we also have a lot of H2A workers so those are people coming from outside the country to work for beekeepers. And then, of course, everything that you said, the outbreaks, sharing vehicles, living in spaces, how do we even manage all of that? Right? So there's a lot that you were just talking about. I guess I want to just talk about that a little bit further. You put out a survey to the beekeepers, did you do focus groups? Were you speaking to individual beekeepers? What did that look like as far as the research went?

Guest 10:21

Yeah, so basically, we put out a survey online. We were really surprised, actually, at how many responses we got immediately. We had over 200 responses. We also were able to interview some beekeepers as well who were involved in our project. So we were able to have phone conversations with these beekeepers and really get a better sense of how the pandemic was impacting their operations in particular. And that was really interesting for us because that's where we got the sense of these timing gaps and these productivity gaps, and the fact that there was so much nuance going on for the beekeepers, that it wasn't just the fact that they had to hire local workers, and then could keep going, that it was much more of a significant impact than just a timing gap. There was this productivity gap, there was an inability to really compensate for the number of bees that didn't arrive, so trying to get access to local bees, but of course, in Canada, we really can't produce enough domestic queens to satisfy the demand here. So that was another significant issue. Without those bees arriving, it really became clear that these beekeepers were struggling.

Jamie 11:22

So you raise a lot of interesting points how Canadian beekeepers rely so heavily on imports. You're taking a lot of information through the surveys, and I've kind of changed up some of my questions here, but I've got two questions. They're not overly related. But I'm curious, do you have any data on the number of beekeepers who just simply left beekeeping and gave up because of the difficulties associated with keeping bees and COVID? So we'll do that one first, then I'll ask kind of a follow-up.

Guest 11:49

That's a great question. That's something that we're actually looking into right now. We don't have data right now on that. But that's our follow-up survey. We'll be asking that question. And I think that's a really significant question. That's something that our research really concluded in the end. What happens in an industry when you've got low or no profitability, which is what happened in 2020,

particularly with an industry that's already quite marginal in terms of how much profit these beekeepers are bringing in is that they just leave the industry. So that's something that I really want to find out more about because we do not need beekeepers leaving the industry right now. We need more beekeepers. So yeah, that's a fascinating question.

Jamie 12:26

And also, you mentioned the number of bees and queens or the amount of bees and queens that you actually bring into the country. So with that bottleneck there in COVID, was there a reduction in the total number of colonies managed by beekeepers over the last two years? Or specifically during 2020?

Guest 12:43

There was a reduction. I don't have the exact numbers on that. We have Stats Canada still working on collecting some of that information. We have a reduced number of colonies overall. Certainly, anecdotally, and from our survey results, there was a significant number of colonies that were not able to really produce either honey or pollinate effectively. That was one of the main issues that our beekeepers were talking about. Basically, they just didn't have the manpower, even if they had enough bees, and they were able to sort of piece together from their operation enough bees, they didn't have the labor to be able to productively build up those colonies and have them be productive producers for that summer.

Jamie 13:22

So that's interesting because I wonder if that drove up pollination prices, because there was still the same demand for pollination, but with fewer colonies available, and therefore, maybe even food prices. I know it's kind of an anecdotal route that we're taking here. But it just seems like there are a lot of potential downstream effects if the beekeepers aren't able to manage enough colonies.

Guest 13:41

That's exactly true. And that's something that we're looking at right now is what the significant impacts on our agricultural systems were. Yeah, absolutely. There were so many indirect effects from this.

Amy 13:51

Yeah, I'm excited to hear your future research that you're going to do because just as what both of you just said, I mean, I feel like even now when you go to the grocery store, food prices have rocketed and it's just really crazy to see the agricultural industry and how all these things like labors and shortage and closed borders has had an effect on our food. I'm really excited about this topic. But, Miriam, the next question I have is, where do you all see the future of the Canadian beekeeping industry? For those who are listening who are unaware of the beekeeping industry in Canada, can you tell our listeners about the industry? Because I know a lot of it is honey production. What about pollination services and other things and other ways that beekeepers make money?

Guest 14:43

Yeah, for sure. So in Canada, it's obviously a smaller industry than in the US, but we have quite a significant pollination industry here. I think last year it was around \$5 billion. So we've got a significant amount of blueberries, raspberries, cranberries coming out of Canada, and those industries, particularly blueberries, because they're the first pollinated industry, were really impacted by COVID, because that happens for us in about mid to late May. So when these colonies weren't able to build up in time for that, that really significantly impacted the number of colonies that pollinated blueberries. So there was a real effect from that. And that's something that we're looking into now, trying to understand what the overall impact economically was on the blueberry industry. Obviously, we do produce a lot of honey here as well. So, at this point, I feel like, because we don't know what's happening with COVID, I think we all thought we'd be here right now in 2022 and COVID would be something historical, of the past. But now that we're sort of in this fifth wave, we don't know, in terms of the beekeeping, what the impact is going to be moving forward. So 2020 and 2021 were both heavily impacted. 2021, a little bit less so, but we still had a lot of supply issues. I don't know if you had the same thing in the US. But we had a lot of bees that were not able to arrive, we had a lot of delays, which caused a lot of dead bees on arrival, which was really sad for beekeepers. We also, of course, because of the different restrictions in different source countries for temporary foreign workers, a lot of workers, again, weren't able to get here in 2021. So I think that we don't know exactly what 2022 will look like. But it certainly will be challenging, I'm sure, again. We are hearing anecdotally that there will still be arrival restrictions and barriers for temporary foreign workers, as well as a reduced supply of bees from source countries. So I think that we're going to be dealing with the supply chain issues and labor issues for quite some time. What's interesting for us is that before the pandemic even hit, our research was looking a lot at how we could mitigate the risk of this dependency on foreign imports, particularly bee imports in Canada, so we're highly vulnerable to anything like pathogen pest importation risks. Oftentimes, borders will be closed because of these risks, natural disasters movement of Africanized honey bees, and even unpredictable political decisions. I mean, when we rely so heavily on this foreign source of bees, our industry is really, really vulnerable. So what we're trying to do with our research is try to encourage more domestic breeding in Canada. I think, in terms of the labor issue, that is sort of a separate issue. But I think if we start doing a little bit of training of local people to be able to at least fill some of these labor gaps that this does happen, again, our pollination-dependent crops sectors, they're continually adversely affected from this pandemic, and it will be continually struggling until we can figure out how to secure a more autonomous supply of bees in Canada particularly. Yeah, so I guess that's where we are right now just trying to mitigate any of the ongoing negative effects of COVID for 2022, but moving forward, really trying to create a more autonomous, independent industry for Canada.

Amy 17:55

What about some of the research that you have in the future? What are you looking into for future research?

Guest 18:02

What's really cool right now is there are a couple of groups in Canada looking at overwintering queens and queen banks, using queen banks. So that will potentially help in terms of developing a stronger domestic queen breeding program and being able to supply more of our own bees in the spring. For

me, personally, we'll be looking at a little bit of what Jamie was asking, just about the ongoing indirect effects of COVID in terms of how they're affecting the agricultural systems and food supplies and all of these things. And then going back into our initial BeeCSI research projects that this sort of all came out of, looking at how these can be helped using diagnostic tools. And I think how COVID impacted that is that obviously, these tools cost money. So when beekeepers take a sample of bees and send them to a lab, the idea of our project is for the lab to send results back to the beekeeper to indicate what stressors the bees have been exposed to. So that's really exciting for us, but also in an industry right now where beekeepers are struggling to make any profit, asking them, "This is a great thing for you to do, but you're going to have to pay for it," is another element that we have to look into of how we can potentially subsidize this program or encourage governments or local tech team transfer teams to support beekeepers in doing this project. So in taking samples, helping them with taking samples, helping them, support them understanding the results, that type of thing.

Amy 19:28

Yeah, I think those are all really great points. And I'm excited to see what the future brings. And I really do think that, with everyone working together, it would be possible to bounce back and come back from COVID. I'm almost convinced of it. I just feel like it'll take time.

Guest 19:44

I agree with you. I really hope you're right.

Amy 19:47

Me too. Dr. Bixby, do you have anything else that you would like to share with our listeners?

Guest 19:53

No, I'm really grateful to have this opportunity to talk about this project and our paper and I'm really hopeful as well. I think that the spring and summer 2022 might be more productive than our last couple of years. So that's great.

Amy 20:05

Great. All right, everybody. That was Dr. Miriam Bixby, a research associate in the Department of Biochemistry and Molecular Biology at the University of British Columbia in Vancouver, Canada. Thank you so much for listening to this episode of Two Bees in a Podcast.

Serra Sowers 20:24

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Stump The Chump 20:52

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

Amy 21:04

All right, we are at the question and answer time. I hope our listeners are happy that we've changed the format of this podcast. I mean, we went from like having different segments and a Q&A, then we had our Five Minute Management and a Q&A, and now we're just doing a segment summarizing the segment on our thoughts and then going straight into the Q&A. But something, Jamie, that everyone loves is the Q&A. So we've got to keep that part.

Jamie 21:28

I think they like watching me stumble around. And so for the rest of you listeners out there, we want this podcast to be relevant to you. And so a lot of the changes that we've made from year to year, this is our third year, starting our third year, we're doing this based on feedback. And so if you like it, let us know. If you don't like it, let us know. But we know for one thing, just like what you said, Amy, the Q&A seems to be popular so we keep chugging away with it.

Amy 21:52

Yes. All right. So let's get into the question. So the first question we have, and I don't even actually know what this is so I'm excited to hear your response, a person was asking about a slatted rack, and what is that? And how/why is it used?

Jamie 22:10

Very interesting question. I get this question once every 10 years. So this is probably the second time I've ever been asked about it. And if you had asked me, if my life experiences had not been what they were, if you had asked me this question, I wouldn't have a clue at all.

Amy 22:28

I would have thought it was like a rack of slits. A rack of ribs.

Jamie 22:34

Well, maybe it is that. But in this particular case, if you go into your beekeeping equipment supply companies catalogs, you're going to find a piece of equipment called a slatted rack. And it's really difficult to describe, verbally. So just Google it so that you when you're hearing me describe what it does, you can see what this thing looks like. But you have to envision, essentially, a device that goes between the bottom board and the lowermost box of a hive. And as you all know, that lowermost box is the brood chamber, that's where the queen likes to be. And so there was this belief that with all of the sunlight coming into the entrance of a hive, it would discourage the queen from laying eggs in the quadrant of the comb that is closest to the entrance of the box. So imagine standing beside a hive and taking out a comb. Let's just say you're standing on the side of the hive that the entrance is now on your left, you pull a comb out. The idea is that maybe the queen would lay less brood in the bottom left section of that comb because it was nearest the entrance. So a slatted rack, just like the name implies, is rather than being a solid piece of wood that goes between the bottom box and the bottom board, it is a slatted piece of wood that goes between the two. The first quarter of the slatted rack, the quarter that faces the entrance, is just solid wood. And the last three quarters of the slatted rack are just strips of

wood. And I know, again, it's really hard to describe this. So make sure you Google and have a look. But essentially, the idea is that bees walk into the entrance of a hive and have to walk along the bottom board a little further before they're able to turn and go up into the hive. The premise, originally, was that this darkens that lower quadrant of the comb that's nearest the entrance. And if you do that, then maybe the queen would lay down there and life would be good. And the only reason, well, there's two reasons I know about it, reason number one, I've been a beekeeper since I was 12 and I would always see this thing in equipment catalogs and wonder who used them, and I know some of you listeners out there probably do, but number two, when I was a student at the University of Georgia, I had the pleasure and fortune of working in Keith Delaplane's Laboratory at the University of Georgia. And as far as I know, he is still the only scientist who has ever done a research project on slatted racks. I helped collect the data for that project. And what he did is he had a cohort of colonies that had slatted racks and a cohort of colonies that didn't. And he published this research in the American Bee Journal in 1999. I can't even find a PDF of it online, but I can find the abstract and I'm going to quote for you the two sentences from the abstract that I saw. "In newly installed packaged colonies," again, these are colonies that are brand new from packages, "the slatted rack significantly increased the proportion of colony brood being reared near hive entrances," so it sounds like it's working. But here's the key take-home message, "but it didn't affect the overall quantity of brood produced." So long story short, when they were on colonies, queens did lay more eggs in that lower quadrant of the brood chamber nears the hive entrance, but it didn't make a difference, overall, in the amount of brood she was able to produce. I've never personally used them. A lot of folks have used them over the years and given me feedback on them. But as far as I know, the main reason people use them is to increase brood production. And the only paper I know that's looked at them suggests that may not be the case. So if you are out there and use them and you love them, if you'll let us know in some of the social media accounts we have, give us some feedback on your personal beliefs and perspectives about slatted racks. I'd be happy to hear them.

Amy 26:55

You know what? After all of that, Jamie, all I could think about was how you let me say slatted rack because that's what is written here. And you didn't correct me. You kept saying "slatted" and I'm like, "Did I say it wrong?" I totally did. So it's a slatted rack.

Jamie 27:10

So you're not in trouble, Amy. It's just the way the question came to us and incidently --

Amy 27:10

I just read it.

Jamie 27:13

I was like, "You know, it's okay. I won't say anything about it. I'll just say slatted rack from this point forward," but dadgummit, you brought it up. Tomato, tomato, slotted, slatted. Exactly. It is with an A though. It's S-L-A-T-T-E-D, slatted racks. Have a look, guys, you may have seen one before and wondered what it's for. That's it.

Amy 27:37

Sounds good. Okay, so the second question, I guess, what month are we in? We're recording this in the beginning of March of 2022. The question that we have is, is it time to treat for Varroa? Do we use Apivar? Do we use Apiguard? What works best? When works best? What are we going to use?

Jamie 28:03

Yeah, so let me tell you, Amy, we're two years and a couple months into releasing episodes for the podcast. I guarantee you all the listeners out there who've heard me talk about Varroa control are like, "Ugh, I know exactly what he's going to say." Well, here it is, guys. I'm going to say exactly what you think I'm going to say. I don't treat based on time of year. I treat based on number of mites, or mite infestation rates, and usually the trigger for me is about three mites per 100 adult bees. So is it time to treat for Varroa? I throw back the question. What are your Varroa infestation rates? What are your overall infestation rates? If they're under three mites per 100 bees, I'd just monitor monthly and only treat when they are over it. If they are over three months per 100 bees, then you betcha, I would treat. So now the question is Apivar, Apiguard, and I could add to that, Apistan, any number of treatments that are available, what works best? And I would say in return, well, I like to use rotational strategies to control Varroa. So I don't use the same product throughout the year. So since this question came in to us in February, and I'm dealing with it here, now, at the beginning of March, I would think to myself that colonies are just coming out of winter, there's probably a little bit of brood showing up in colonies. It's also likely that the temperatures are very moderate this time of year. So I would err on the sides of the organic acids such as formic acid or oxalic acid or something like a thymol-based treatment. In that case, it'd be Apiguard or ApiLife Var, at least for us here in the US. If on the other hand, it was in the middle of spring or outside of the honey flow or summer or something like that, I'd probably go to something like an Amitraz-based product like Apivar. So rather than listening to anything that I just said, if you have heard me deal with Varroa, you know that I'm a huge fan of the Honey Bee Health Coalition's information related to Varroa management. They actually, Amy, have an amazing decision support tool. If you go on their website, you can click through buttons that will ultimately get you where you want to be with treatment options. Let me give you an example. The whole purpose of that decision support tool is to help you rotate efficacious treatments based on, not the time of year, but the condition of your colony. Is it growing? Is it stable? Does it have a lot of brood, a little bit of brood, etc? As you answer those questions in the decision support tool, it'll ultimately ask you are you okay using some of the synthetic acaricides? Or would you rather go more of the organic acid route or something like that? You click on what suits your fancy, and it will use all of the information that you provide to ultimately get you down to a list of control options that would be really good control options for you at that time. So I'm a huge fan of the decision support tool at the Honey Bee Health Coalition Varroa website plus the other information they have there, we'll make sure to link that in the show notes.

Amy 29:26

Absolutely.

Jamie 29:58

So Amy, we're going to do something radically different this Stump The Chump. You've just asked me two questions. I'm going to ask you one of the questions that came in for us now.

Amy 31:31

I've been waiting for the day to be The Chump. I guess today's the day.

Jamie 31:34

I'm passing the hat to you. It is your turn to take the blows, Amy. Alright, so you are aware, now, listen, I appreciate folks, you're listening to us from around the world, there are some of you that this particular question might not be relevant to you. But here in the US, in recent history, beekeepers had been able to purchase antibiotics to use to treat American foulbrood and European foulbrood. And they could just purchase the antibiotics. They didn't need anyone's permission. They could just do it. A few years ago, a rule changed to where now beekeepers have to have a veterinarian provide a veterinary feed directive or some sort of a prescription for the beekeeper to be able to buy antibiotics to treat for American foulbrood or European foulbrood. So with that kind of background, the shortest story is beekeepers could buy antibiotics directly themselves, now they no longer can unless they have a veterinary feed directive or a prescription, Amy, the question to you then, actually, I guess it's two, is where does one acquire a veterinary feed directive? Or where do they even find a honey bee vet in general?

Amy 32:50

Right. And I think those are great questions. I'm going to start by saying, if you need a veterinary feed directive, contact a veterinarian. Easy as that. No, I'm just kidding. Well, that's true. So how do you find a vet? And that's a really great question. We've been working, here at the University of Florida, we've also been working with Dr. Milbrath at Michigan State University to actually create programs to train veterinarians. And we're also looking to teach beekeepers how to work with their veterinarians, because right now, there really is simply not too much. But I will say that there is a website, and there's a group called the Honey Bee Veterinary Consortium. And on their website, we'll be sure to link their website on our show notes, when you go to their website, there's actually a link that says Find a Bee Vet. And so you can click on Find a Bee Vet in the state area where you can do a little search, you can click your state, you can look within any distance or your zip code just to see if there's a veterinarian that will work with you. Something that we are trying to do is work with other universities, institutions, and of course, working with veterinarians who would like to work with honey bees on training them so that they can work with you all, the beekeepers.

Jamie 34:08

Amy, great answer. You're less of a chump than I am. You did a really good job. So I'm the biggest chump. So I really appreciate that. Well guys, if you've got questions for us out there, please post those in our social media accounts, reach out to us at our laboratory email, we do our best to get through as many questions as we can. There's a long list that we have. We sort through them, see if we can find some common themes, and try to help out any way we can. So thank you for submitting questions, and we look forward to seeing more.



Serra Sowers 34:41

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.