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SPEAKERS

Amy, Jamie, Honey Bee, Guest, Guest 3, Guest 2, Stump The Chump

Jamie 00:05
Welcome to Two Bees in a Podcast brought to you by the Honey Bee Research and 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 00:42
We've got a great episode today for you all on Two Bees in a Podcast. First we're joined by Dewey Caron and Deborah Delaney who will be talking to us about the BeeMD database. It's similar to WebMD. So we'll discuss what that is and how beekeepers can use it. That segment will be followed by Chris Hyatt, a commercial beekeeper and the vice president of the American Honey Producers Association. He will be discussing some of the national association's initiatives on behalf of beekeepers around the US. Of course, we will end our podcast with a question and answer segment from you all, our listeners.

Jamie 01:15
Alright guys, so welcome back to Two Bees in a Podcast. We've got a really good treat for you. We're actually interviewing two people today and these people are both experts on so many things, but what the two of them and I have in common is that we all work jointly on a project called the BeeMD. So we're going to be introducing you to that. And the two individuals who we have here today to discuss the BeeMD with us, Dr. Dewey Caron and Dr. Caron is Professor Emeritus of Entomology and Wildlife Ecology from the University of Delaware. He retired from there in 2009. He moved out to Oregon to be close to some of his kids, and while there he is also an affiliate faculty member of Oregon State University, he remains active with bees. I see him at meetings, I hear about him, I read his stuff still, so I know he's quite active. And we also have Dr. Debbie Delaney, who is an Associate Professor of

Entomology and Wildlife Ecology, also at the University of Delaware. Dewey and Debbie, thank you guys so much for joining us on Two Bees in a Podcast.

Guest 02:21
Thank you.

Jamie 02:23
Hope you guys are both doing well. I guess, Debbie, you're out in Delaware. And Dewey, I guess you're calling in from Oregon.

Guest 02:28
From Oregon. That's correct.

Jamie 02:30
All right. Great. That's great. So we've got people from all over the place, and we got every corner of the country covered at the moment. Amy, what do you think about that?

Amy 02:37
I think that's pretty cool. Wait every corner?

Jamie 02:39
Well, there's only three corners, right? Dewey and Debbie, you'll just have to kind of put up with us. Amy and I occasionally cut up on the podcast, and actually people remark about my dad jokes and all the stuff that ends up on the podcast. So if we say something that we laugh at, we're trying to be funny, even if you guys aren't laughing. So just kind of giving you a heads up.

Amy 03:03
We think we're pretty funny.

Jamie 03:07
So, back to the task at hand, we brought you guys in; we could really talk to you about any number of things. You're both experts on so many things and have distinguished careers. But Debbie and Dewey, we brought you in specifically to talk about the BeeMD today, but before we get into that, just for the benefit of our listeners, I'm curious if you could just briefly tell us about yourselves. How you got into bees, beekeeping, and how you ended up where you are, and to keep this from being overly awkward, I think Debbie we'll just start with you, and Dewey, when she's done, if you'll just jump in and give us a brief overview of your past. So Debbie, how'd you get where you are? How'd you get into bees? Let's just start there.

Guest 2 03:46
It was a roundabout path. I started off as a general fine art major at an art university, and I mainly focused on drawing humans. I started to switch to other things, insects being one of them, and plants, and I realized that I didn't really foresee myself having a career as a struggling artist. That's just not

something that I wanted. [I wanted] art to be something that I did not for money but just because I love to do it. So I dropped out of art school and went to Oregon State, excuse me, where Dewey is now. We kind of flip flopped, and I took every -ology course possible. I took andrology, mycology, entomology, botany. I mean, you name it, because I was just kind of, I wanted to dabble and see what was exciting to me. And when I took general entomology it was a no brainer. I just absolutely was like, this is it. I'm obsessed. I just loved learning about all these different insects, and then there was a small, I think two class periods where we went out to the apiary. Dr. Birgit was there at that time, and I couldn't believe that you could open a colony and touch these bees and have these amazing smells wafting out and I just knew that was exactly what I wanted to do. So immediately I got a hive and then I think the next year I had double that, and then all of a sudden I had 20, then more and then I was making honey and selling it and making candles and selling them. And then I got involved in research. So that's kind of how I got involved in beekeeping, and I still do it to this day, and I love it.

Jamie 05:41
I think that's neat that you started off at art school, and then you decided to move into bees. I think that's really neat. You saw the light. You ended up gravitating towards the thing that was your destiny.

Guest 2 05:52
Yes, absolutely. Well, Deborah in Hebrew means honey bee.

Amy 05:58
That was just perfect.

Jamie 06:00
How'd it take you so long to figure this out? Well Dewey what about you? How'd you get into this whole thing with bees?

Guest 06:08
Well, I guess I was a kid that loved nature, being brought up in a very rural area of Southern Vermont. I went to the University of Vermont as a chemistry major, and the long labs in P Chem finally did me in. I had taken an ecology course, and I fell into the study of biology, literally, in this ecology course, we went to a river and I fell in. We went to Lake Champlain and I fell into that, and we went to a bog and I fell into that too.

Jamie 06:38
Good heavens, Dewey, remind me not to go hiking with you.

Amy 06:41
I was about to say, did someone put a stick in front of your foot?

Guest 06:47
It was students in college and that was a thing, you had to get right into your subject. And really, the enthusiasm was there. So I stayed with biology. When I started a PhD at Cornell, you select a subset of

what entomology is. And of course, three-quarters of all living things are insects. And my interest was still the ecology and more in keeping things alive and honey bee apicology was just natural, in that we were studying populations and their relationships to nature and within themselves as well. And we could keep them alive. We didn't want to do it to kill them to develop the newest and best new material of how to get rid of them. When I went to my first position at University of Maryland, I interacted extensively with what was then and still is the US Department of Agriculture Bee Lab at Beltsville, and they had a number of specialists that worked on pests, and done a lot of work with nosema, had done extensive work with the foul broods, etc. And initially, it started out with an interest of these things that affect populations of bees, looking at some of the traditional situations such as the diseases, the gut disease of nosema, etc. I went to Delaware in 81 as the department chairman, and stayed, and among many of the different things that I did at Delaware were bees and pollinating insects and bio control. And now that I'm retired, I have a chance to just concentrate on the bees, so I've continued to do that.

Amy 08:40
That's amazing. I love hearing all of our guests' stories of how they got into beekeeping because every person has their own story. And it's just so fascinating to see what you've done with your careers. And it's just amazing to see that.

Jamie 08:53
Well I half expected Dewey to say I fell into a hive, that that's how it happened. Anti climatic there. I thought that's where you were headed.

Guest 09:03
No, although, one of the things you always have in the back of your mind, bees, of course, they sting, so whoa, do I want to get into that? And when I went to my interview at Ithaca with Dr. Roger Morse, I mentioned, I don't can't recall the last time I got stung. And he says "we can fix that" and next thing I know we're out in a beehive and he's having a bee sting me.

Jamie 09:29
The way professors used to be.

Guest 09:31
Yeah, the acid test. He was very straightforward as a major professor, a great mentor.

Amy 09:39
All right, so we brought you guys on to talk about BeeMD, which is like the equivalent of Web MD but for bees, right. So I was wondering if you guys could tell me how it came to be. Who thought of this idea, the history behind it and what is it? What is BeeMD?

Guest 2 10:00
Well, I'll start and Dewey you can chime in. The very beginnings of BeeMD were just kind of discussions at a North American pollinator protection meeting, if I remember correctly. I think the initial idea was Jamie's, honestly. And Dennis vanEnglesdorp, they were talking about how nice it would be to

have a tool for beekeepers in the field, new beekeepers who could diagnose things that are going on in their colony, and have that be picture based, so that they could actually compare what they're seeing in their hive to something on an online tool. There was a lot of discussions at first of how much it would cost and who would develop it and for, I think many NAPPC meetings, I can't remember, we would talk about it. But then slowly, there began to be more momentum. Jamie and Dennis started coming up with a symptoms list, a very exhaustive symptoms list, which, unfortunately it has to be, because there are a lot of things that you can see in a hive. Then it was the work of getting pictures that would correspond to the different symptoms, and I brought in a good friend of mine, Jordan Ambra, who runs Serenity Software, to start putting together the interface and the user page for the BeeMD. It really was from Jamie's conception based off of WebMD that you could put in symptoms, and then there would be this diagnosis that would come about, so the beekeepers could actually diagnose what's going on in their hives. I can't even remember how many years ago that was Jamie, do you remember?

Jamie 12:13
You know, Debbie, I don't. It's funny. Sometimes when I get asked about it, it's just not clear to me. I'd even hesitate to guess. I was gonna say it's been five to eight, maybe? I just can't remember.

Guest 2 12:24
It was right after I came on to UD, so that was like 2010. It's been it's been a long time coming. I think over the years, different people have come and put a lot of effort and input and heart and soul into it. For various reasons, they've had to back out a little bit because stuff comes up, because this has all been volunteer for all of us. Dewey, I'll let you talk about how you became involved.

Guest 13:02
Okay, that was my recollection as well, I was working with the protection group on a different angle at the time. We were working on a manual to help educate people on pollination, the basics of pollination, and got involved extensively in developing a manual for grade schools, which, as Debbie indicates, all of this work was pretty much volunteer initially. As I saw the developing BeeMD, I loved the concept, because having taught entomology through the years, there are so many insects that it can be just, where do you start? It's just daunting. But the concept of the BeeMD is that you're asked contrasting questions. You select one, and that leads them to another contrasting question, you select one and another and you select one. And at this point, with the skill of Jamie and Debbie and some other very talented people, those questions had been pretty much refined, so that without going through hundreds of questions, in a very small number, you were down to something that might be real world, what people might actually see in their colonies. The emphasis from the beginning was on visual. As I came into it, I saw that once you landed at what would be close to a decision or a final decision, we had visuals but we didn't have language of what it might then round out, so really what in that photo, what in that situation, should you look at specifically, concentrate on? That's how I got involved, trying to write up those ultimate descriptions, and did a lot of searching in my database for some of the slides and tried to help contribute in that manner. The other thing that really struck me with this is that there's a lot of bad guys out there. but there's some things that are unusual that we see in bees. And the more closely you look, the more unusual things you'll see.

Amy 15:26
I wasn't sure if you're talking about people or honey bees.

Guest 15:34
Present company not excepted. This also has an emphasis on describing and finding things that are not the bad guys, but are unusual and pique the interest of those beekeepers that are in their bees and are looking and see these things. It's not all bad.

Jamie 15:59
So you guys are right, and since my name has been invoked, I want to add to what you guys just said. So you guys recall correctly, or at least as much as my memory is of how this was born, the idea was just what you stated. It's very simple. Can we give a tool to beekeepers, that when they go to their colony, they can use this tool to quickly diagnose what they're seeing and Dewey, you're spot on with that last comment. As someone who does a lot of extension, as the two of you do as well, I'm constantly asked questions about colonies, where the answers are, "Don't worry, it's normal." For example, it's June now when we're recording this episode, and it's hot. So bees are going to start bearding in Florida. So I'm going to start getting emails in the next few weeks, "My bees have these clusters at the entrance, what's going on?" And it's okay to say, "Hey, what you're seeing is normal." So built into this tool is just what you said, Dewey, this idea where, you click on these signs of things that you're seeing, and sometimes the answer is, "Hey, this is normal. This is normal, it's within the range of behaviors that you could expect bees to do." And that's sometimes what people need. Sometimes when you see something, I think back to when I was a brand new father for our first kid and like, "Well, is this normal? Is this normal? Is this normal? Is the kid okay, is he going to be alright?" Sometimes people just need to be reassured, don't worry, this is within the realm of things that these things should be doing. It's okay. And so that's one of the things that we tried to develop into the tool. And Dewey, you're right, when you joined the team, Debbie, and Dennis and I had come up with these good signs of disease or signs of things that are normal. But oftentimes, I happen to be a consumer of extension information. My wife and I grow blueberries and peaches and stuff in the backyard, and sometimes when we read informational documents, we feel like there's not enough information at the tail end to help us make that final decision. So, when you came on, we were able to, [make sure] that this tool when people go in and click these conditions, it's able to get them to a list of candidate things that might be happening, it might be this or might be this or might be this. But ultimately, we felt like we needed people to be able to get to that last little, okay, now, this is how you can determine if it's this, this or this. And that's, Dewey, where you came in. You provided that context so that people can say, I've got three options. It's either, you know, American foulbrood, or Varroa, or my colony being perfectly okay, so how am I going to know which of these three it is, and you've provided that text, if it's American foulbrood, you might see these other things. If it's Varroa, you might see these other things. And I think that's particularly useful, because, people might be going to this website and simply clicking on boxes of conditions that they're seeing, but they may not know that there's other things that they could look for associated with that condition. And that's where your text comes in, Dewey, it says, here's a lot of what we know about this condition, you've checked these things, but you might also look for these things to help further know what you're saying. So with that background, I just wanted to ask, Debbie, in your case since you worked closest with the software developer, I want to ask you specifically what happens

to the user when they get to the website? You might even mention, the website for the BeeMD is thebeemd.com, and that's important to distinguish from BMD.com, because that's something else entirely.

Amy 19:36
But it's also b-e-e, not just the letter B. That's right.

Jamie 19:39
I will spell it out for you, T H E, B E E, M D dot com. Alright, so Debbie, assuming they did all of that correctly, and they land on the homepage? What do they do from there?

Guest 2 19:53
So, this is where I was probably most involved with this process, and it was figuring out the areas in which a beekeeper might experience something that they are questioning or something that they want to ask about. When you get to the BeeMD, you can kind of click on where you are seeing the issue or the concern, be it in the hive, in the brood with your queen, there are all different kinds of categories that are there for you to click on, and then you can narrow down within that category, and it'll give you different types of symptoms that are associated with that category. So if it's in your honey super, you would click in the honey super, etcetera. And so really, it was going through and linking different conditions with different areas in the hive, and then linking symptoms with the different conditions, with the different areas in the hive. That's the back end of how the site was developed in cooperation with the developer. That took a while because, as you both know, there are some conditions that can mean a couple of different things depending on what it is. You can have certain things in your brood, that could mean a couple of different possible scenarios, in terms of bacterial infections, etc. That's where the tool constantly had to be refined so that you could narrow down to what you're actually hopefully seeing in your hive. One thing that I wanted to comment on that you started talking about, Jamie, in response to Dewey's comment was that when we first started out beekeeping, we would go in our hives, look at things, and then I don't know about you, I'm assuming that you guys probably do this as well, you'd go straight to your army of books to look things up. What is this? Looking up what am I seeing in here, this isn't right, and then, finally, you might find a spot in your text where it's describing what you're seeing, and then you get that reassurance. I think that's what's really nice about the BeeMD, especially now that Dewey has added this information. It's an educational resource, and it is a kind of a reassurance to beekeepers, they're learning what they're seeing in their hive. They're learning about other things as well, when they're looking up their initial concern, and they're getting this reassurance about what's going on in their hive. So it really is an educational tool, and I don't think we necessarily thought of it that way at first, I think we just more wanted it to be maybe a tool to help alleviate some of the phone calls we get as extention people. So that they could look and figure out these things for themselves. That's how it initially started on the design front, when I was working with Jordan is just organizing it into these different nested levels within the hive.

Jamie 23:29
Debbie, that's just spot on. Before we ask another question, I just think that's spot on. We tried to make it as simple as possible. When people go to the beeMD.com they're just given six choices, does it occur

in the adults? Does it occur with the brood? Does it occur in the colony? Is it a honey issue? Is it an internal hive issue or an external hive issue? And they just click on one of those, and then they get asked a series of questions, or conditions. Sunken cappings, cappings with holes, and you just click the things that you saw. It's that simple. It's just really simple. And then once they push enter, it goes to, here's these options, it's an 80% match with Varroa, it's a 50% match with starvation, it's a 10% match with foul brood, and then you click on all three of those, read the text that Dewey and others provided and edited, and it helps you narrow it down and you're right, Debbie it's just that tool to help people hopefully have some confidence in what they're saying and know how to diagnose the issue.

Amy 24:28
Yeah, and you could use it on your, so many people have smartphones nowadays, you just pull your smartphone out in the beeyard, even though, do you recommend actually going out to the yard, looking through and checking your hive and then coming back and using it, or do you recommend using it right on the spot while you're in the hive? What do you think?

Guest 2 24:47
I think it depends on if you mind getting your device sticky, and also if you have internet, if you have Wi-Fi connection.

Amy 24:59
Jamie was talking about the results and how there are different percentages associated with the results that you get. I guess my question is, when I'm using, I won't say I use WebMD that often because I feel like sometimes people can go down a pretty serious dark hole, and decide that a little cut on their finger is gonna be, they've got an hour or so left of life, but how accurate is BeeMD? Do you know how accurate it is?

Guest 25:30
Well, you get, at the end, a probability, and there are some that will come out that you've described the conditions for this particular situation, the color of the eyes that you see, when you accidentally open up a capped cell, for example, because it changes and some people get very concerned, gee, I don't ever remember seeing it this chartreuse color, where'd this come from? Is this normal? So I think some of them come out to be, yeah, you've identified what it is, and then we have a comment or two about how, whether this is serious or needs further attention or not. But there truly are some where, it could be two, or three or four different things, and you're probably going to have to do a little bit more digging. Perhaps you're going to need to bring in another tool, a diagnostic tool, or phone a friend or find someone else, that is seeing the situation. Some of these things are more clear cut than others, but it does help you realize what what might be the greatest probability of what it is that you're looking at. I'll back up just one second on this and say that we love our lingo. We have all kinds of terms in bees and beekeeping, and we quickly try to immerse our students in those terms. For those users of the medical, [web]MD, you go in that and quickly those terms pop up, and what does this term mean? What is that? The BeeMD we've sought to make it what you're seeing without overpowering with the lingo, so that you don't have to then run to a dictionary and try to figure out what does snellgrove board mean, or something of that nature, some of this very specific lingo that we use. I think that helps, too, with finally

reaching a probability that, well, it's probably this. And since this is pretty serious, maybe I do need some more help, or to do something more versus, oh, that's what it is, oh, that's interesting. And then go on.

Jamie 28:01
I think, Amy, one of the keys to thinking about this is it assigns what we call a match score, and I don't understand necessarily the model behind it, that would be Debbie's website contact, the specialist who developed the algorithm. But the idea is, you've checked things that this list matches 80% of what one would check if it has American foulbrood. Or it's a 50% match with Varroa and the key to the website is it's going to give you two or three or four or five things that what you check matches. That's the beauty of having Dewey on board is, now that you've got this list of three, four or five things, you can click on each one of those and read more about it, which just like Dewey said, will help you determine whether or not you need to enter additional information, or you need to phone a friend or email one of us or use some other diagnostic tool. So that's the key to kind of helping them hone down to what it is they think that they're seeing in the field.

Amy 29:09
And it could be very well possible that it's more than one thing.

Jamie 29:13
In fact, usually, probably. So incidentally, Debbie, I don't know how much Jordan did with the algorithm, but that's kind of my understanding of how the match system works.

Guest 2 29:27
Yes, that's right, yep.

Jamie 29:31
I think obviously, this website will get better over time as beekeepers use it, and report back to us and say, hey, I clicked on this, the BeeMD suggested these three things. I narrowed it down based on the text that you guys provided. I thought it was this, but it turned out to be this, so there's lots of opportunity for feedback, which really Dewey and Debbie, kind of leads to my next question which is, how can beekeepers help the BeeMD get better? I can already think of a couple of ways, but I'm curious for you guys, how can beekeepers help improve the BeeMD?

Guest 2 30:10
Oh gosh, I think just by using it. By using it and providing us feedback, just like you said, and I think one thing, too, like if you really wanted to be a beekeeper to help improve the BeeMD is take something that you know what it is in your colony, and then use the tool and see if you get to it. That's a really good way to ground truth how well the symptoms and everything that you're clicking is leading to the diagnosis. Just try it, especially at the club level, I think it might be fun for clubs to explore using it as a group, and then providing feedback to any of us that can get it back to NAPPC who can get it back to Jordan, where we can make different tweaks to the site. I think just using it is probably the best way I can see.

Guest 31:20
I second that. Using it and giving the feedback. Beekeeping is practiced around the world, this is not just for Florida, or just for the East Coast. We have brought in experts from a number of places to try to help us with some of the stuff that we might not be seeing every day and we're not quite as familiar with. Those are beekeepers that will be finding those different things as well. So, encourage the feedback, that's the only way we're going to strengthen it and very much if you tried to do something through it and got frustrated. Where were you at that point? What was the issue that you had, and it's probably a fairly simple tweak on our part, to help make it easier for the next person that comes along or for you when you go back in again.

Jamie 32:15
Yeah, I think that's great. One of the things I'll say, for our international listeners, we tried to develop this in a way that would actually be relevant to many of the conditions in the system, the things that you'll be seeing in your own colonies, regardless of where you are in the world. Debbie, you're spot on with this idea of ground truthing. If you know exactly what it is, fill in the signs of disease or signs of whatever you're seeing and see if the BeeMD takes you there. Another thing I'll add to the great answers both of you gave is one of the things we tried to do on the website is we tried to make it very pictorial. We wanted to show people examples of what it is that they might be seeing. For example, K wing, K wing is that condition where the wings on one side of the bee's body become unhinged, and they kind of display separately and the bee looks like a letter K. Well, when you just say K wing to someone they may not have a clue what in the world K wing is. And so we try to provide a picture of a bee that has K wing. So that brings me to a point, we need photographs, we want to photo document everything that can be seen in a bee colony so that when we say something like, well, are you seeing sunken cappings? We provide you four or five or six pictures of sunken cappings. If you read a book and someone says sunken cappings it's always the one pic, right? It's the one picture? Well, what if yours don't quite match that? Well, for every condition that can be seen, we would love someday to have five or 10 images of it so that you can see it at different angles and different situations. So that what we're describing on the website, you can match to what you're seeing, and to make a long story short, we need images because we didn't have an infinitely large photo database, we need images.

Guest 2 34:06
I think that was our big gap Jamie for a while is that we didn't have pictures and even maybe some of the pictures we have there's probably better pictures that other people have of that condition.

Jamie 34:17
That's right and on the website there's the opportunity for you the user to go and upload pictures. Hey, Jamie you said K Wing but I didn't think your image of K Wing was sufficient. Here's what I have. We want to improve the website both with accuracy, Amy, you asked about that a little earlier, we want to make it more accurate. When it helps give matches we want those matches to be likely what's happening. But we also want it to be more informational. And we need to do that. The biggest thing that users can do besides use it and give us feedback is to provide images for many of these things for

which we may not already have images, or certainly things that are underrepresented by maybe only one or two images.

Guest 2 34:57
Can I go into the weeds for a minute? One thing that I was thinking about, and maybe we discussed this, and my memory just stinks, and I can't remember, but for some of the conditions, we were going through, and it's really hard to get a static image, of following the queen, or bees kind of trembling, or something outside of the entrance, it would be great to eventually have the capacity to get videos of behaviors. Because we do have some that are very, it's a behavioral kind of thing where you need to see it in action. So that might be something maybe in the future, I can't remember if we discussed that.

Jamie 35:37
Debbie, I think that's brilliant. And so if you are a listener, and you have tons of money and want to fund adaptations and updates for the BeeMD, let us know if you're a funding agency, but I certainly hear your point that I think it would be great to be able to add video behaviors, because there's really no substitute for that. I agree with you completely that could greatly improve the website. That's a really good comment. So guys, the biggest way that the BeeMD can be a success is if you use it. One of the things that I don't think we've mentioned up until this point, but the beemd.com is free. It's free for you to use. We're not charging anything. It's just put together by scientists and funding agencies as a decision support tool for you the beekeepers, that's it. We made it as a resource for you. So we hope you use it and provide us feedback. We've had two great guests here with us today. They were Dr. Dewey Caron who is a Professor Emeritus of the Entomology and Wildlife Ecology Department at University of Delaware. He's now an affiliate faculty member at Oregon State University. And Dr. Debbie Delaney, who's an Associate Professor of Entomology and Wildlife Ecology at the University of Delaware. Dewey, Debbie, thank you guys so much for joining us and talking about the BeeMD.

Guest 36:58
Thank you, Jamie, Amy, for the opportunity.

Guest 2 37:01
Thank you.

Jamie 37:04
And users, if you like the BeeMD, when you bump into Debbie, or Dewey, or some of our funding partners who you can see on the website, or Dennis vanEngelsdorp who was also in on this from the beginning, if you bump into one of those guys, thank them for the efforts. It's been a lot of hard work, but hopefully, it'll be worth it for you and please use it. Let us know what you think.

Honey Bee 37:27
For additional resources, visit the podcast page on our website, UFhoneybee.com

Jamie 37:37

One of the things that I like to tell beekeepers when they're getting into beekeeping is they're always asking what is important for them to get started and I say the basic stuff, it helps to have a mentor, it helps to work bees ,it helps to, read a lot about them, but to me, beekeepers, especially as they advance in their beekeeping skill sets and years, they really need to be a part of their local, state, and national beekeeping associations. To me there's such great value to being in a Beekeepers Association, a lot of beekeepers will do local. Fewer but still some will do state, and then fewer still, but still a lot will do national. I feel that the National Beekeepers associations have a lot to offer beekeepers and we're very fortunate today because we're being joined by Chris Hiatt, who's a commercial beekeeper, but not only is he a commercial beekeeper, he's the vice president of the American Honey Producers Association. We're going to talk with Chris about what this national beekeeping association can do or has been doing on behalf of beekeepers around the US. So Amy, I hope you're ready to hear this. I don't know if you've ever been to an AHPA meeting, but I know that they do a lot for beekeepers. Chris, it's great to have you. Thank you for joining us on Two Bees in a Podcast.

Guest 3 38:54
Thanks guys, this is great.

Jamie 38:56
Absolutely. So Chris, what we always do when we get started, we recognize you're a commercial beekeeper, we recognize you're the vice president of the American Honey Producers Association.

Amy 39:05
But we want to hear your story.

Jamie 39:07
That's it. Before we get into any of that, I'm just curious, can you tell us a little bit about yourself, how you got into beekeeping, what you do as a beekeeper, etc. before we kind of launch into your role with the American Honey Producers Association and what they do for beekeepers?

Guest 3 39:21
Sure, yeah, I grew up in a beekeeping family, so I guess I'm second generation. I could have been fourth generation because my great grandfather brought some of the very first beehives out west in the mid 1850s to Utah and he was a pretty good nursery man. And he brought 50 hives, but his son, my grandfather, never did. He just farmed, and then it skipped a generation so I could have been fourth generation, I guess I'm third generation once removed.

Jamie 39:50
That's amazing it skipped him, though, if he actually stayed a farmer because it seems like at least some hives on the side for a hobby would have been something that he did. That's interesting.

Guest 3 39:59
Yeah. No, it was but he lost my grandfather lost the farm in Idaho and during the Great Depression, and they ended up moving to Eastern Oregon into the sagebrush because they set up a new irrigation

project there. That's where my dad was born. And my dad went to school and was not making much money on the farm in the summers and he jumped in and bought a beekeeper out in Washington State. He flew to Washington, and that's where me and my five brothers were all born. My dad had a perfect working crew, six boys. That's how I grew up in my summers, in North Dakota, extracting, pulling honey, putting bees in and out of apples in Washington State, and went to school, I graduated from Brigham Young University [with a] degree in horticulture and then said, Hey, not every day someone hands you a family business, so there's me and two brothers here in California. There's three brothers in Washington State and everybody goes North Dakota for the summer. So we pretty much run those three states. Almonds, apples.

Jamie 40:59
Wow, all six of you are still beekeepers?

Guest 3 41:02
One of them's not anymore.

Amy 41:08
That is so awesome. That's really cool.

Guest 3 41:12
Sometimes it's decision by committee or decision by wrestling match, but we get a lot of stuff done. And it's good that it's all one person that trained us, my dad. So we all work bees pretty much the same and so it's worked out.

Jamie 41:30
That's really neat. Well, how did you end up becoming affiliated with the American Honey Producers Association, it says here, you're the vice president. I'm assuming you've been involved for some time in order to make it to that position.

Guest 3 41:42
Well, my dad was at the meeting when ABF and AHPA separate. So my dad's always been involved. But he's not too involved leadership-wise, because he was just by himself with a few managers trying to grow his company. But we were running, probably 5,000 to 10,000 hives, and then when all the brothers got into the business, we went up to 20,000 hives, and we had a big crash in 2004. That was when the coumaphos, the strips, stopped working. You just put it in once a year. So the apistan in 2003, we notice that once a year didn't work very good. So we had a huge crash where like, we ought to get involved and see what's the deal? So we went to the Tucson meeting, I think it was 2004, 2005, I can't remember. Ever since then, we've been involved. But just the last five, six years, I've been on the executive board for the honey producers. You learn just as much as you do in the hallway, as you do in the speaker sessions. And that's, we've made a lot of good family friends and longtime friends there. It's just a good feeling going. It's almost like seeing family every year when you go to one of those meetings.

Amy 42:54
Yeah, that's awesome. I love different industries, if you just become family and camaraderie is such a big thing. I mean, it's very difficult to work bees and be a beekeeper whether you're backyard, commercial, or sideliner, without interacting or meeting people. That's part of the experience, having a mentor. I was wondering if you could tell us about the American Honey Producers Association. So what do you guys do? What is the association about and what do you guys focus on?

Guest 3 43:25
Well, we're a group with over 600 members, and we represent a good chunk of the hives representing the United States, and definitely more than half of the honey produced in the United States. We really focus on issues that affect commercial beekeepers and the profitability of beekeepers. Over the last few years being involved, one of the biggest things that probably sticks out is the Emergency Livestock Assistance Program, ELAP. You guys probably know about that. So when I started, there was really nothing, we really don't have anything like row crop and other farmers. So they just threw us into this program. And it was paying like 50 cents on the dollar on your losses. The losses, they've switched the losses from 19% to 21%; they're supposed to be based on historical average, but we finally got the program uncapped in 2017. So in 2016, there was 15 million paid out to beekeepers in the United States. In 2017 it was 33 million. 29 and a half million in 2018. I don't have last year's number, but so it's really helped and I know there's one of our board members from Louisiana that probably wouldn't be in business if he didn't have that ELAP program that he was starting off. After working for years for a commercial outfit, he started his own beekeeping company and without that ELAP, he probably would have been out of business. That was a big program, I think that's helped. What else? The honey issue. That's a huge issue that we've been working on. A recent success, though, we got a million and a half appropriated through Congress to customs, and we worked on this really hard for years. Now, finally, customs will have nuclear Magnetic Resonance testing, which is the most up to date testing for fraudulent honey. And they were using some 17 year old technology. So we're excited about that and hopefully that'll help some of the fraudulent honey and some of the funny honey coming in from Asia, and stop that from coming in and hopefully raise our honey prices up. Then over the years, almost everybody knows that we had an anti dumping action back in 2001. That's helped a lot of SueBee members, a lot of members of our group, that you get a Byrd Amendment payment, which is some money that when the Chinese honey comes in, it has to have a tariff on it. So that is, not what it used to be, but it's given money to some of the hurt parties, which is the commercial beekeepers. The recent thing that we talked about at our convention that we've worked on it was the commercial item description. We could never get a standard of identity. I guess the olive oil industry kind of ruined it. FDA mentioned that there's even some California olive growers that could never even meet their own standard. They just got out of that business. The next best thing was this commercial item description to describe how long do you can heat honey, is it still raw, you heat it for how much time at what temperature, and all these different guidelines. So that's really helped, and so now the next step, the USDA has encouraged us to update your labeling laws, which haven't been updated since like 1985. And one thing that I kind of want to do in our group is copy Canada, because Canada has switched to Canada, number one, and number one, so if there's Canadian honey in it, it's Canada number one, just Canadian 100%. If it's a blend or something else, or all foreign, it's just number one. I would love to do something like this, because USDA grade A is so, it doesn't mean much anymore. So if it's 100%

American honey, USDA Grade A, if it's a blend USDA Grade B or something like that, or USA one or number one, just copy the Canadians. That's one thing we're working on this year, and there's a group called the Honey Integrity Taskforce that we started that has some packers, importers, representatives from Sue from American Beekeeping Federation and us, and we're in a room trying to hash out the differences, and trying to test more honey, so that's been an eye opener, and hopefully we'll get something done with that group.

Amy 48:03
Sure. That sounds like a lot of different projects. I had no idea. I don't think I realized.

Guest 3 48:10
So, at Apimondia, I don't know if you heard about it, but at the world honey competition, 46% of the honey samples didn't make it because they were adulterated.

Jamie 48:20
I heard about that.

Guest 3 48:22
It's a lot more. There's a lady that interviewed me this past year from Vice, and she on her own, tested a bunch of honey, and her article showed that it's not as clean and as good as you think it is.

Jamie 48:36
Chris, I want to talk about this for just a second. The title is the American Honey Producers Association. And I think that's pretty neat when I was listening to you chat about all of this, except I'm looking down my list because I made notes on all the stuff that you said, the only thing that doesn't directly deal with honey production is ELAP. Everything else is strictly related to honey and so I think this is interesting, because when we go to beekeeper meetings that the talk is all pollination, what are we getting for pollination prices, and honey is kind of the afterthought and it's really neat to hear you talk about all the things that you guys are doing on behalf of honey and some of our listeners out there might not be overly familiar with the problem of fraudulent, or adulterated, or honey coming from Asia, because if there's a huge honey dump into the US market, then the prices go significantly down and make it very difficult for beekeepers who are producing honey here in the USA to compete. Could you talk a little bit about that just to help put everything else into context that you've discussed so far?

Guest 3 49:38
Well, we're just finding that a lot of the Chinese honey, to avoid the tariffs, are just coming in through India and Vietnam. It's called Trans shipment, and there's also other issues of these honey laundering factories. They're using something called resin technology where they're scrubbing the honey, removing the antibiotics, removing Roundup, whatever, and it's basically not honey at that point, by Codex Alimentarius, the European Codex. It's not Honey by definition anymore. They're removing all the pollen. It's a sweetener. But that resin tech stuff is coming into the market. It's being blended with our honey. I mean, that's one of the big things that's just upsetting is that everything you [see] in the shops is clover honey, clover honey, you have all these different shades of clover honey, and we've

lost. The wine industry has done awesome. Like, hey, look at this, look at this variety, and then it's too bad we couldn't have the same in the United States. Oh, look at this is orange fire, or Tupelo, or whatever it is, instead of just everything being blended into one group and plus, it's foreign. Plus, with Americanized, we always tell everybody, please buy American honey, you're supporting American beekeepers, which is actually in the interest of our national defense to keep our food supply. We talk about pollination a lot, because almonds are huge, and we talk about H2A visa program and what we do for that, and we talk about the E log, the electronic logbooks and how we're trying to keep trucks on the road not having to stop with a load of bees when it's 95 degrees out. So there's a lot of stuff besides the honey.

Amy 51:16
Yeah, that's really interesting. It almost seems like more work stripping the honeys than it is to actually just harvest and sell it. It just seems like it's a lot more time and resources, but my thing is always to buy local, like, every time, we always get a question, where do we find good honey, and I say find a reputable source, go to your local farmers market or meet your local beekeeper and buy honey from them. If you trust them, then there's no way that it could be altered at all. I think for the sake of our listeners, a lot of them are wondering, when they go to a grocery store, or when they're going to, like a local Ace Hardware, they usually sell honey. And so they have a label. So what is the process of actually the honey labeling guidelines right now? What does it mean? What are we looking for when we're going out to purchase honey?

Guest 3 52:09
Yeah, I'm no expert on it, but you're supposed to have the grade, USDA Grade A, and most everything is USDA grade A on the front, and the country of origin in legible lettering. And that is a huge issue. Some packers are putting on the back or the bottom or the top. Sometimes you can't even read it and sometimes it's six or seven countries long. And then we'll test it and you'll find it's like 99.9% Vietnamese, even though it's listing like seven different countries. So yeah, that's one thing we're working on. California State Beekeepers, we're working with them this year, they're trying to tackle that because California has actually a pretty good standard of identity in their state from years ago. If we could just try to get the blending being branded, a different grade for blending versus 100% American, we could really do that. Because the consumer is confused, when they see that USDA grade A, they probably think it's all American honey, where that bottle could be almost 100% of foreign or whatever.

Amy 53:22
Also what about education, so educating the consumers and also educating the bigger box stores that may be purchasing some of this, do you think that that would be a possibility as far as just educating the consumers?

Guest 3 53:38
Yeah, and we're trying to do that, we have a campaign going, and we actually have just launched an app. It's just the AHPA app, where we're encouraging our members, or anybody to take a picture, and it goes to this database, and we're going to have this big repository of data to show good labels and bad labels just as proof when we go to DC to say, Hey, this is our problem. These are our issues. So the

app, you can take a picture and download a good label or fraudulent label. I know there's a lot of people, in the American Bee Journal there was a good article last year about someone in Pennsylvania at the farmers market testing these competitors' honey, it was all from like, Southern California or something, it wasn't even local Pennsylvania honey, and then another competitor was Asian honey or something. This is a huge issue, and pollination is huge. For the first time this past year pollination passed honey for income, the average American beekeeper, the data. We know that pollination is growing, but there's so many beekeepers that you still need a good price for your honey to stay in business.

Amy 54:50
The AHPA app, I think that's how I found your information. I received an email and I sent it out to my commercial beekeepers listserve to be a part of that and take part and to take pictures of the honey labels. I'm pretty excited to share that with everybody.

Jamie 55:07
Chris, you're saying so many things that make me want to ask like a zillion questions. I'm trying to temper my enthusiasm here, because there's so many points I want to make. When I first got to Florida, the Florida State Beekeepers Association was having what they believe was a similar issue, and so they did get a standard of identity for honey, I wasn't aware that there were issues with it on the national level, like for olive oil that you had mentioned. That was one of the big pushes that the FSBA wanted to do, was to define what honey is, and a lot of it was to help with this adulteration process. When I was a, I've been keeping bees since I was 12. This was not an academic pursuit for me originally, it's what I like to do, I still have a couple of colonies in my backyard. when I was a kid, I already knew a lot about honey and what it was, etc. There were some places in the mountains of Georgia where I'm from that I would travel, and they would sell sour wood honey and sour wood was two different words. Whereas we know that the actual tree from which the bees produce sourwood was one word. And basically what they were trying to do is get around making the claim that it was actually sourwood honey, it was sour wood honey, and that was my first introduction to kind of sneaky label language to try to get around issues. You mentioned something that really just stuck with me and resonated. My family and I did a sabbatical in Germany a few years ago, and we were there for six months. The EU, the European Union, if I'm not mistaken, has rules that when a package claims that it is something it has to be that something. For example, I happen to be a consumer of meat, I'm a carnivore, as it were, and in Germany, they have a lot of sausages and other meats. One of the things that they have there is Black Forest ham. Well, here in the States, they slap Black Forest ham on absolutely everything when it's as far as possible from the actual Black Forest ham and in Europe, if the package says Black Forest ham, it has to have come from there, produced the way that it's supposed to be produced for Black Forest ham. In other words, all US based Black Forest hams would essentially fail the test. It was interesting to me that there was that level. If it says it's this type of thing, it has to be from there, and if it's not from there, done the way it's traditionally done, that has to be noted on the package. That leads me kind of a long story to get to this point. You had mentioned seeing these labels that might have seven countries listed, but there's one country that's the predominant honey, or are these dumping issues? My question to you is, is there precedent from other countries that we could follow in the US for the packaging of the appropriate packaging of honey, like in the European Union,

they have Black Forest ham is from the Black Forest in Germany produced the way it's historically been produced. There is there precedent like this, the AHPA has been using or can use to lobby for the stricter label guidelines.

Guest 3 58:10
Well, yeah, the, the probably the thing I think of first is manuka honey from New Zealand and Australia, it commands such a higher price, and there's already been lawsuits against Trader Joe's I believe, because they were claiming it was 50 proof. It's almost like, the 25 Proof, 50 proofs, 75 proof, and you have to have tests and see how much pollen to prove how much manuka's actually in it, so that's kind of one thing we're looking at for some of these more expensive varieties, like, you mentioned that, sourwood, basswood, Tupelo, fireweed, whatever, to prove it is actually what you're saying. But like I mentioned, the Canadians, I think just given a more honest labeling law, less confusing would help, but also we have to remember, everything needs money. So there's no enforcement, a lot of the times we're like, well, we can do this, but who's going to enforce that? The FDA is so overwhelmed, and they've told us in DC in the past, if this is not a human health risk, we really don't care. But there is some traction now about food fraud, and we've worked with this Dr. Mike Roberts from UCLA who's helped us write a white paper on that, that we were using in DC to say, hey, this is a food fraud, and it's actually hurting the endangered American honey producer. This is a national security interest. So please look into this and help us. A lot of it comes down to money if people are going to actually enforce it. It's probably competitors more than anything, generally called out or lawsuits.

Amy 59:51
Sure. I think it's so crazy that we look at a label and we just assume that that's what it should be. Jamie, when you're talking about the Black Forest ham. It's just so funny, like anyone going to grocery store here would want to look at a label. And that's what we do. We look at ingredients, we look at a label, and we assume that's exactly what it should be. I think it's just very strange that we're having this conversation to begin with. But of course, we've got to start somewhere as far as moving forward. And I do think that education is important.

Jamie 1:00:23
I mean, label honesty. If that's what on the label, you think that's what you're getting but label honesty is a trick and like I said, I harken back to my sour wood days, when I looked at that jar of honey and said there's no way that color's off. I bought it to taste it. And it tasted more like, well, I would say corn syrup. I don't want to go too far down that road.

Amy 1:00:47
That's fair. That's fine. All right. Chris, you've kind of told us a bit about what AHPA does for beekeepers. I'm just wondering who can be a part of this association? How can people get involved? Is it only for commercial beekeepers? Would I be able to join it? I'm going to be the next president. You'll see.

Guest 3 1:01:07

That's totally fine. You can have it! No, anybody can be a member. Anybody. We have sideline, we have smaller guys, we have some from New Hampshire, Vermont. We've got all across the United States, and our executive board, we've had all across Mississippi, Louisiana, New York, South Dakota, North Dakota, California, Texas. It's a pretty diverse group. But yeah, one thing that you're not gonna like, Amy, is that you have to pay your way everywhere you go. Every time you go to DC you got to pay your flight.

Amy 1:01:39
I'll just make Jamie pay for that.

Guest 3 1:01:41
We have researchers, so anybody can be a member, but a voting member, you have to have some hives.

Jamie 1:01:54
Well, Chris, I want to make sure that we get the news out, because a lot of people constantly ask, what does this group do for me? What is my state association do for me? What can I get from the American beekeeping Federation? What can I get from the American Honey Producers Association? What can I get from this group or that group? So you went down the list and I just want to make sure and read it again, and you can tell me if there's anything that I've missed that you guys have done for the beekeepers here, just in the past decade. You've got the ELAP program, the Emergency Livestock Assistance Program uncapped in 2017, and make it possible for more beekeepers to to recover more money for their losses. All this honey related stuff that you've mentioned, again, honey is in the title of your Association, American Honey Producers Association. So for example, you've got more money appropriated through Congress, to customs so that nuclear magnetic resonance imaging, testing for fraudulent honey can be available. You've dealt with anti dumping issue, which is where countries are just putting a lot of honey into our market, countries from all over the world putting honey in our market, which lowers the honey prices that you guys are able to get. You couldn't work necessarily to get a standard of identity, you gave olive oil as an example of something that didn't work so well. So instead, you guys were thinking about a commercial item description that you're working on at the moment. You specifically like the way Canada does it. If it's from if it's honey produced from Canadian Beekeepers from hives in Canada, it's called Canada one. If it's a blend or includes foreign honey, it's called just number one. Then you mentioned this app that you guys have developed recently, where you can take pictures of labels, which will upload it to provide you guys the data necessary to lobby for the changes that you hope to have. So these are just some of the upper level things that you guys done for beekeepers, it just sounds like you guys have done a lot on behalf of beekeepers and the honey production industry in general.

Guest 3 1:03:52
Yeah, and then I'd probably throw in research. We've gotten, over the last 5/10 years, more and more money for the ARS labs across the United States. There's a lot of our board members that are on the hiring process for the new lab going to be down in Stoneville, Mississippi, and they're hiring right now. We were part of the ribbon cutting for UC Davis this last year in January. That was exciting. That was a

big push that we've been pushing for years to actually have an ARS lab in California for almonds because so many bees come to California. Another interesting one, it kind of goes along with one of your podcasts I listened to last week about tallow and the invasives. We have so many members that go to the South for tallow, and they're up in arms about the eradication of this flea beetle that they want to release and how important it is a honey crop and the same thing in New York for like knockweed or and just a lot, Loosestrife, and you can go down the list where in New York, actually they had a biologic that was released, and it took out the loosestrife, but it took out like the reeds in the marsh and a worse invasive replaced it. So it ended up making it worse for the beekeepers and worse for the environment. So we hired a bio policy consultant to help us with that. And we've written, and we are in the talks with AFIS about this release, and another interesting thing is about forest service in the West. We've had some permits denied by some of our members, long standing permits, in Forest Service for bee yards. They're quoting the Xerces Society, saying that honey bees are outcompeting the natives. The same person we use for that, we will use the consultant to write up some multi use and rites that we should have had access to this federal land. We have a study that's going to be coming on here, this summer between natives and non natives. And that's a huge issue, and we've had very interesting meetings going to DC talking to Forest Service and how little beehives are actually accessing 190 million acres of forest ground. We're like less than a 10th of a percent of how many bees are on that land. It's funny that you'll have one government agency say we probably ought to charge you more for these bee yards, because we know they're clean acres up in the forest, and then we'll have EPA tell us no, no, no, the mites are your problem, it's not pesticides, because everything in farmland is fine. Really no, wait a second, one group is telling us these are clean acres, they should be worth more, we have another groups saying oh, no, no, it's all mites, no pesticides. It's really interesting working with these federal agencies trying to get something done. It's an uphill battle too.

Jamie 1:06:48
Chris. You're mentioning things that are things that we have had to deal with here, kind of on the local level, just like you guys, but in our case, for decades too. If we think about when I first got to Florida, again, beekeepers were really wanting to put bees on state lands, exactly for the very reason that you said, because they're in a lot of honey producing plant nectar bearing plants there, they wanted to get there. But there are some individuals who've made exactly the same comment, well, this is going to be bad for native bees or whatever. And so there's certainly been this conflict, and then you mentioned a little bit earlier about the invasive species. As you know, here in Florida, we use Brazilian pepper as an example in that particular podcast episode you're talking about, to kind of say to the beekeepers, hey, this is a reality, people are moving on these things, and we know honey producers in other parts of the country have their own invasive species that they have to deal with. These are growing issues and it's nice to know that you guys, these things are on your dash and you're aware of them, and you guys are already proactively doing things to address them. It's neat that you've added this to the list. One thing I appreciate most of all, as a researcher, is that you guys support research and that you're, for example, in the case of the USDA lobbying to grow those labs and get more funding for those USDA labs. That's really neat that you guys have taken that on and making it one of the things that you do.

Guest 3 1:08:04

Thank you. Yeah, no, it's every year, except for this year. That's the first year because of COVID. We didn't go to DC in May. We usually go May and sometimes October. So yeah, this is weird not going this year.

Jamie 1:08:16
Well, Chris, thank you so much, listeners, you are listening to Chris Hiatt. He's a commercial beekeeper and vice president of the American Honey Producers Association. He's spent some time with us today on our podcast, just to let you know what the American Honey Producers Association does for you on behalf of beekeepers all around the US whether you knew it was happening or not. Chris, I'm assuming that you mentioned to Amy that anybody can sign up to be a member. I guess they can find that information out on your website.

Guest 3 1:08:43
Yep. A lot of people have said it's the greatest secret in beekeeping, we don't know what you're doing. We're trying to get our information out more. We have an E blast. It goes out twice a month to our members. But there's stuff on Facebook being posted. But yeah, it's on our website, you can sign up, I will hopefully be in Baton Rouge in December, if the COVID thing calms down, but we're moving forward, the mayor calls it looks good. And the American Bee research conference should be with us too. So I'll move forward.

Jamie 1:09:14
What I'd say then Chris, is that we're going to make a point to put a link to your website in our show notes so people listening to this podcast can find out more about the American Honey Producers Association by clicking on the link and going to and browsing your website and consider joining as a member. Chris, thank you so much for joining us today on Two Bees in a Podcast.

Stump The Chump 1:09:32
It's everybody's favorite game show, Stump the Chump.

Amy 1:09:47
Okay, it is question and answer time, Jamie, I've got three questions for you. And they all kind of seem to relate to each other in one way or another. So I think they're pretty practical, good questions, which all of them actually have been. Someone was asking, they've seen and heard a lot of chatter about growing resistance to amitraz, and this is related to Varroa. Is there any science on this and what does it say? Is there amitraz resistance happening?

Jamie 1:10:19
There is absolutely amitraz resistance happening. Now, that should not alarm beekeepers who are super concerned, but the idea is that if you use something too much, an insect or a mite pest will likely become resistant to it. In this case the mite Varroa has been exposed to amitraz for multiple decades by this point. It's a compound of choice for many commercial beekeepers around the US. There were some rumors that there might be pockets of resistance. There are some scientists, especially Dr. Frank Rinkovich, for example, at the USDA, in Baton Rouge, Louisiana, he has been traveling the country

trying to study this and I'm very aware of his work. I'm also aware of some other individuals who've seen similar things. I would say that it's not necessarily super widespread and super rampant that we need to be worried that we're going to lose Amitraz tomorrow, but I will say that it certainly raises some alarms that the one thing that beekeepers have been using a lot of the last decade, could very well lose its efficacy here in the next five to 10 years, which is very alarming for the commercial beekeeping industry. A lot of commercial beekeepers have been unwilling to believe this or listen to it. I know that when we suggested it some time ago, we got our chops busted for it, but the data are definitely starting to trend that there are at least pockets of resistance.

Amy 1:11:48
Okay, well, that leads me to the next question then. So what does that mean, when beekeepers are talking about mite resistance, and there are all these terms that are being thrown out like Varroa sensitivity.

Jamie 1:12:01
There's a lot to consider here with regard to this. When I first started keeping bees, Fluvalinate, Apistan, was the product that we used against Varroa, and anytime an industry relies very heavily on one compound, number one, and in instances when the compound is misused, number two, you set up the stage for resistance. The industry was heavily reliant on fluvalinate, this kind of mindset if the label says that six weeks is how long you leave those plastic strips in, then well heck, 12 weeks might be twice as good. Those kinds of things. I remember at the time when I was working colonies I would routinely find four apistan strips in people's boxes, when clearly the label only said two so it's things like this that ultimately led to resistance. Then they moved to using Coumaphos, that common product was checkmite, and so, as you might guess, Varroa ultimately became resistant to checkmite. In fact, there's been some reversion to susceptibility to fluvalinate. There are times when you can use apistan and might get a control for one or two times in a particular year, but Coumaphos is still, Varroa are still quite resistant to it. Then of course, burst onto the scene, amitraz, and we've talked about it already. What happens is when these mites get exposed to this stuff over a long period of time, especially in low or inappropriately used doses, the mites can become resistant. So we've got these other compounds, these more secondary killers of Varroa, things like thymol, that you'll see and apiguard, or some of these other things that beekeepers are using, and a lot of these are pretty good controls for Varroa but not so great, which is what kept beekeepers wanting to look for more compounds. Fast forward to this idea that well maybe we can breed these resistance or tolerance traits into bees and so there's been a lot of work all over the country and in other places around the world for that matter where people are trying to breed honey bee strains that are tolerant of Varroa, which simply means that Varroa are present in the colony, but the bees don't seem to be suffering as a result of those Varroa present. Honestly, when you get these resistant strains, there could be a few reasons that these bees are resistant to Varroa. Perhaps they can groom the Varroa off of them, or chew the Varroa very easily, or perhaps there's this hygienic behavior expressed where they remove Varroa and the individual immature bee that the Varroa's feeding on. There's been these breeding programs that have steered in that direction. Unfortunately, I would argue that a lot of the honey bee strains that are used across the United States are not resistant to Varroa. They're very susceptible strange, which means if Varroa get

in there the bees are going to die unless you do something to address it. We definitely need more adoption of these Varroa tolerant or Varroa resistant stocks.

Amy 1:15:05
When you're talking about Varroa resistant stocks, it's intertwined with queen and queen breeding and whatnot. I'm wondering, where would someone be able to find queens that were resistant to some of the problems?

Jamie 1:15:24
It's tricky because there's only a few main strains produced in the US that a lot of effort has gone into, for example, the Minnesota hygenic strain. This is a strain of Italian honeybees that the University of Minnesota Marla Spivak and her team spent a lot of work in a couple of decades ago producing a line of bee, a strain of bee that's quite hygienic and hygienic behavior is simply where worker bees can detect Varroa in capped brood cells, uncap those brood cells, and remove the Varroa and the developing bee that's in that brood cell. So you get an instance here where this trait has been bred into the strain. Marla and her team did a great job. So Minnesota hygenic, the USDA bee lab their breeding lab, there in Baton Rouge, Louisiana, they've spent a lot of time working with Russian honey bees. They've also spent a lot of time working on other lines like Varroa sensitive hygiene lines, or the Poli which is a line that beekeepers are going to hear more about, we've got Sue Colby and others working with New World Carniolans and what I tell people is we have these strains, these Russian bees, these Minnesota hygenic, these Polis, etc, these VSH, what I tell people to do is if you're interested in using one of those strains of bees, go to the individual or individuals who've created that bee. In the Minnesota hygienic case, that's Marla Spivak and in the Russian Bee case, that's the Baton Rouge lab. Ask those individuals where they can purchase bees that most represent those strains. It's funny, it's no mystery I can basically claim to have Minnesota hygienic bees in my backyard and sell Minnesota hygienic queen, but there's no there's no requirement for me to demonstrate that I in fact have that trait. I always tell people go straight to the source. There happens to be a Russian Queen Breeders Association, for example. Ask those guys and gals, who is trying to maintain the original stock appropriately? Ask the University of Minnesota staff who's trying to maintain the Minnesota hygenic line appropriately? Then use the queen breeders those individuals suggest because then you can feel pretty good that those stocks have been maintained to the level that those university or USDA folks believe is sufficient to have these traits. I'll tell you, I did some research when I was a postdoc at University of Georgia on the Russian bees, for example. And we found a really, really good impact of using these bees on productivity, survivorship, as well as mite tolerance, they simply were able to keep mite populations low for long periods of time. So I would say that if you get a hold of a good stock that's got a lot of research behind it, and it's maintained appropriately in the hands of the queen breeders, you really can help your bees fight Varroa and I personally believe breeding bees and the adoption of these stocks or strains that have these traits is really part of the future of beekeeping. It frustrates the willies out of me that our industry hasn't embraced it to the level that I feel that we should have embraced it. It shouldn't even be an afterthought. This is just something we should do, and it's not. It's just sad to me.

Amy 1:18:52

Yeah. And it's really interesting, the industry is actually a lot smaller, I think, than people expect. To be able to go directly to the source is just great. I think that's really great.

Jamie 1:19:03
Absolutely. One of the problems though, that people have is that everybody and their brother or sister can sell queen bees and so it's hard to separate the noise from the truth, which is why I always say, hey, go straight to the source of the bee. Ask the bee lab in Baton Rouge where can I buy these lines? I'll make another comment is these queens are going to cost you more. They tend to be more expensive than just the queens that are, for lack of a better term, run of the mill, or unselected etc. Expect to pay a little bit more, but if you use them, don't continue your Varroa treatment regimen as you did as if you didn't have them. The whole purpose of using these is to alleviate some of the burden of treating for example, using amitraz. So you really need to couple stock use with monitoring for Varroa to determine when treatment's necessary. Keep in mind that treatment will be necessary. These things don't usually eliminate the need for Varroa treatment all together, it just may reduce your need to do it three times a year to once a year. The last thing I'll say, and I know I've kind of going long with this, but I think it's very important, is when you use these stocks, you need to commit to them, because a lot of beekeepers will purchase them, put them into their colonies and their colonies will go queenless and they will allow a new queen to be made. And they'll say, don't worry, the traits are still there. But requeened colonies can lose these traits quickly because they're open mating. You really need to commit to it, and what do I mean by that? I say if you're going to use a resistant stock, you need to purchase queens from the source and requeen your colonies every year, under the assumption that most of your colonies will have requeened within a year from those queens that you originally purchased. You need to be bringing in this stock continually unless you live on an island and you're the only beekeeper. Well, thank you so much and thank you everyone for all of your questions and comments and don't forget to rate us on some of the podcasts apps out there and review us on our Facebook and other social media sources. Hi, everyone. Thank you so much for listening to this week's episode of Two Bees in a Podcast. We would like to give an extra special thank you to our audio engineer James Weaver, and to our podcast coordinator, Jacqueline Aenlle. Without their hard work, Two Bees in a Podcast would not be possible. For more information and additional resources for today's episode, don't forget to visit the UF IFAS Honey Bee Research and Extension Laboratory's website UFhoneybee.com Do you have questions you want answered on air? If so, email them to honeybee@ifas.ufl.edu or message us on twitter instagram or facebook @UFhoneybeelab. While there, don't forget to follow us. Thank you for listening to Two Bees in a Podcast.