

Episode 1 PROOFED

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SPEAKERS

Dr. Boncristiani, Amy, Dr. Cameron Jack, Jamie

Jamie 00:07

Welcome to Two Bees in a Pod 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 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 myths debunked 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 Pod. Hello, and welcome to today's episode of Two Bees in a Pod. I am one of four co-hosts today. My name is Jamie Ellis. I am accompanied by Cameron Jack, apiculture lecturer at the University of Florida.

Dr. Cameron Jack 00:52

Hello.

Jamie 00:53

Amy Vu is our extension coordinator at the University of Florida.

Amy 00:57

Hello. Hello, everyone.

Jamie 00:58

And Dr. Humberto Boncristiani, who is our applied research scientist here in the bee lab.

Dr. Boncristiani 01:04

Glad to be here.

Jamie 01:06



We are excited to bring today's first episode of Two Bees in a Podcast to you. We all have one thing in common: we work for the University of Florida Honey Bee Research and Extension Lab. We have lots of responsibilities but one of those responsibilities is communicating information related to bees and beekeeping to beekeepers, and that's really how this podcast Two Bees in a Pod was born. We had this idea that we could provide information over the air, making it possible for beekeepers to learn from us and us to learn from beekeepers, as we work together to improve the sustainability of bees and beekeeping everywhere, not only in the state of Florida, but also in the United States and, hopefully, around the world. So in today's episode, we're going to introduce ourselves because we will be the common co-hosts of this podcast, and we're also going to introduce this podcast in general, and we're going to finish the episode by answering some questions that we've already received from audience members. So first things first, I want to spend a little bit of time introducing myself. As I shared already, I'm Jamie Ellis. I've been working at the University of Florida since 2006. When I was hired here, I had responsibilities in extension, research, and instruction. That means we have to lead a lab that has a science focus, answering questions that will help beekeepers become better beekeepers and help keep colonies healthy. I had teaching responsibilities where we would train undergraduate and graduate students here at The University of Florida, and I also had extension responsibilities. So I got this job largely because I have had a lot of experience with bees. I've been keeping bees since I was twelve on my grandfather's dairy farm. I love keeping bees. I've been keeping bees for thirty years now, and it's just exciting to me. I even do it as a hobby at home and it became really a profession as I went on to The University of Georgia and worked at the bee lab there. I just discovered this passion for bees and for bee science, and I put all that together, and I was fortunate enough to be hired at the University of Florida, and now I'm here as a partner at a very large program that we collectively call the Honey Bee Research and Extension Laboratory. I am not alone, though. I am accompanied by what I happen to think is the United State's best apiculture staff. All of these individuals are with me as cohosts on Two Bees in a Pod, and they're going to all introduce themselves as well. So first I'd like to focus the introduction on Cameron. Cameron has a history of beekeeping, don't you, Cameron?

Dr. Cameron Jack 03:33

I do. My grandpa was a beekeeper in Southern Nevada. I kind of grew up around bees. When I was a kid, it was just a weird thing my family did. It was wasn't something that I went around, wasn't a thing that I went and told people about. But when I got into college, I was actually studying science education. I wanted to be a high school science teacher. But then I had a really great professor that introduced me to research. I actually did bat research for a year and a half, which if you haven't had the opportunity to catch bats, I mean, it's second only to beekeeping. But I got into research and I knew I wanted to pursue it a little bit more. And so I did my masters at Oregon State University where I started actually doing honey bee research. And I researched a honey bee gut pathogen called *Nosema ceranae*. And then when I would go to these meetings, and I would tell beekeepers about my *Nosema* research, then a million hands would go up afterwards, and they would just ask me a bunch of questions about *Varroa*. And so, I thought for my PhD, I thought this is probably where I need to focus and actually came to the University of Florida in 2015 to work with Dr. Jamie Ellis. And then a few years later, a position came open for an apiculture lecture position and I thought, "I know beekeeping and I

like to teach." This is what I wanted to do. It just kind of seemed to be a perfect fit, and I applied for the position. I got it in 2018.

Jamie 04:57

So what are some plans you have for developing courses here at the University of Florida? I mean, I know that you're our apiculture lecturer, but you have plans to teach lots of classes here. That's going to be one of the things that makes our program unique. So what are some of those courses?

Dr. Cameron Jack 05:21

Sure. So I mean, if you think about kind of a typical program for it within agriculture, I mean, you might if you were interested in horticulture, for instance, you're going to take a few horticulture courses, you do an internship and you go into the industry, if you're in cattle, you take a few courses and then you do an internship and you go into that industry. There's nothing really like that for beekeeping. And so we're making new courses, a lot of other universities that have somebody that knows anything about beekeeping or honey bee research has one course, generally, and it's called beekeeping. And it's just kind of the big warm and fuzzies of what beekeeping is, but nobody can really go away from that course and actually be successful in their own kind of operation. And we have a series of courses where we have beekeeping 1, beekeeping, 2, where we're just kind of introducing the general concepts of beekeeping in some of the kind of the foundational knowledge. We're planning on a new course called honey bee biology, where we actually really take a deep dive into the biology and interesting biology of honey bees. And then we'll also create some new courses that will really get into the industry focus. So commercial beekeeping, how to be successful, how to have a beekeeping program or beekeeping operation and how to manage people and things like that. This summer, we're making a study abroad course in Thailand. We'll actually go and look at honey bee diversity and study new bees that we don't have in the United States. So a lot of interesting things.

Jamie 06:49

So I think your breadth and depth in apiculture instruction and your experience with bees and beekeeping are really going to add a lot to this podcast. I'm just curious, what do you hope to contribute to this podcast? What do you hope comes out of your efforts here on Two Bees in a Pod?

Dr. Cameron Jack 07:05

Well, I hope that we can, one, spark some curiosity from listeners. I mean, everybody has questions if you've been beekeeping. Really, in any degree, you're going to come up with so many more questions than you can possibly get answers. Hopefully, this serves as a nice forum for discussion. And also to answer a lot of beekeepers' questions. And I hope that this also sparks more of an interest for people to get maybe some more training, there's a lot of training opportunities that do exist for bees, and maybe this would, I'm focusing mostly on training UF students, but maybe Amy could tell us a little bit about what she does, because she focuses on training beekeepers.

Amy 07:50

Sure, yeah. So actually, I was going to jump in on when you were talking about the study abroad in Thailand because that's actually how I got into agriculture and beekeeping. When I was an undergraduate student, I decided to go on a study abroad to South America. I was in Ecuador, and decided when I was there, I really don't know what I want to do. But I think I want to help people grow food, I think I want to study food production, figure out how can we make the world a happy place. And for me, if you're not hungry, then you're happy. I don't know if you all agree with that. But anyway, I went on and got really into agriculture, did my undergrad degree in agronomy with a study of soils and Environmental Science and International ag. And then I decided, I wanted to go to grad school, I wanted to go and I wanted to teach people how to grow food, I wanted to help them with food production, whatever that was at that time. And when I was in grad school, I actually was friends with seven or eight other friends. And they decided, we've really heard about bees declining, and we really want to help the bees. And we decided we should just go ahead and get into beekeeping and see how that works for us. Of course, we made a lot of mistakes along the way. But, you learn from experience and with that, I became an extension agent in Orange County, which was in Orlando, Florida, and really helped with beginner beekeeper information and classes and workshops. So now that I'm here as the extension coordinator at the lab, I really would like to work with training the trainers. So I like to work with Extension agents throughout the state. I like to work with apiary inspectors that work for the Florida Department of Agriculture and Consumer Services, and hopefully, we'll be able to disseminate that information.

Jamie 09:43

So I know you've been using that word extension a lot, right? You're here as our extension coordinator. So what is extension and then what is the link to the podcast? Why would podcast fall under your responsibilities in extension?

Amy 09:54

Yeah, so every time I tell people when they ask me what I do, I think they just think that I play all day, and they don't really realize what extension is. And some people forget with the land grant university system, there are three components to that. So there's the instruction that Cameron does, there's a research that Humberto will talk about in a little bit, and then there's the extension component of it. And that's really taking all that information, all the science that's being done here at the university, and sharing that with the general community, whether that's a backyard beekeeper, whether that's a commercial beekeeper, and really, we're just extending the science to the general public. And so that's where this podcast really plays and really falls under is that extension program.

Jamie 10:32

I mean, it's important to remember, right? You can't reach every audience with just one activity. So the podcasts that we're doing here, it's just our opportunity through extension to reach a unique audience. So Humberto, you've actually been in bees for a long time yourself. So tell us about how you got into bees your experience with bees and what brought you to the University of Florida and perhaps a little bit about what you hope to contribute to this podcast?

Dr. Boncristiani 10:54

Well, my history with bees is long. I don't know how much time we have but I'm a second-generation beekeeper in my family. I've grown up around bees in South America, in Brazil specifically, with Africanized bees and at that time I didn't like it to be honest. I was hiding, I would get stung a lot, and as a kid I always tried to hide from my father and didn't want to help at all. Then I go to college, I knew I like life, I was very curious about how life works and I want to study life and was trying to put as far as I could from bees but every single time bees come back to my life. There is no way around. There is some forces in life that bring me back to bees. In college, the only work they have that paid some money there was bees so I go back to bees. I decided in my masters and my PhD student - in my PhD courses, to avoid bees again. I was a - my background is molecular biologist. I'm a virologist from a medical school so avoid bees but in 2006 the bees start to die in the United States and apparently USDA was looking for a guy for a virologist to study honey bee viruses. And apparently, at that time, I was the only guy on the planet that have the two backgrounds combined. So USDA brought me in from Brazil and I was working with Judy Chang at the time at USDA in Beltsville, Maryland. And that's the way I started work, research bees in the United States. That's where I came in. From from the USDA, after four years there I go to North Carolina to work with the grant for National Academy of Science and work with Dr. Oliver Repel and David Tarpy and the honey bee research consortium, North Carolina consortium. Then from there, I work for the army there, I've been with bees a lot around all over the United States. Together with that, I got experience from the industry so that was a very interesting opportunity that all these experiences that I got combined, University of Florida come up with a very unique idea of a position that is a very applied honey bee research position dedicated to commercial beekeepers in the state of Florida. And I got very interested to try to fulfill that position because I get a background with bees, a background with the industry, the company I have background with research, I thought it would be a good fit to to work in that position and it's a very interesting I'm very happy here in the University of Florida. My contribution here, I think, I can talk about everything related with bees here, especially with the commercial side and need to be very applied, dedicated apply a solution for that. In my opinion, now that I'm learning a lot about commercial operations, I think we need to find specific solutions for specific problems- there is no silver bullet for beekeeping in the state of Florida. I think we need unique solutions for unique situations.

Jamie 14:15

So there you have it ladies and gentlemen, we are your Two Bees in a Podcast team. There's four co-hosts and every time we do one of these episodes, two of us will be joining you on the air. Two Bees in a Pod. Where in the world did this idea originate? Of course, we are making a play on two peas in a pod. We always want there to be at least two hosts moving this podcast forward. So that's the two bees, and of course, Two Bees in a Pod is a play on two peas in a pod. You can see how smart we are by putting the title together in a way I think that's appropriate. Now, this is a podcast that we hope will be of use to you our listeners, as beekeepers who are trying to find bits of information that can help you be better beekeepers, help your colonies to be more productive, long-lived, etc. It is very important to know that we by no means consider ourselves experts. This will not succeed unless we are partners in this podcast. So the whole idea behind the podcast is we're just giving a voice to bees, to beekeepers, to bee research, etc. And so we're going to try to facilitate that over this podcast. It's been something

we've been wanting to do for a while. And we're really excited about being able to roll it out for you. Now, we don't want to lose our listeners, we want our podcast to be remarkably engaging, we want it to be something that benefits you. But that also you have a little bit of fun listening to in the process. So what we're going to do now, let's spend just a little bit of time introducing you to our strategy for moving this podcast forward. What is it going to look like? What's it going to sound like? How can you be a part? Etc. And I just want to start by telling you that our podcast won't be monotone, it just won't be an individual preaching to you all the time. There are going to be different parts of it and Cameron, how do you see the structure of the podcast? How are we talking about making it to where each podcast has something for everyone?

Dr. Cameron Jack 15:03

Well, the way we're thinking about it for now, anyway, is we're gonna break this podcast up into different segments. So we're thinking that every podcast, we will talk about three or four different segments. Those segments might vary somewhat from podcast to podcast, but from episode to episode, but what we're thinking of is new research, maybe one segment about pests and diseases, which every beekeeper needs to kind of have on the forefront of their mind. Maybe some management, maybe we'll talk a little bit about common bee myths. Yeah, some news topics, questions and answers,

Amy 17:00

Things that are live from the hive.

Dr. Cameron Jack 17:02

Live from the hive.

Jamie 17:03

You had to go there. I guess the idea, Cameron, is no one podcast is going to be very robotic. In other words, it's not going to always be the same three segments in a row. Essentially, we've got all these segments from which we can choose, and we put them together into that day's episode, right?

Dr. Cameron Jack 17:20

Exactly, yeah, well, we'll be able to, and we really want it to be something for everybody. I mean, even commercial beekeepers who are doing this for a living will hopefully be able to find something that will be able to resonate with them, as well as a hobbyist that has just a bee hive in their backyard, or maybe just somebody who's just interested in bees, there will be a segment where we can talk about something that will be beneficial and useful. And as you've already said, in order for this to work, we're going to have to have some feedback from the audience. And we want to be able to answer your questions. And we will undoubtedly see people as we go to meetings and travel. And we would love to hear that feedback. So we can know kind of what to talk about and what is going to be useful for everybody.

Amy 18:04

Yeah, so we'll be interviewing people, right? I mean, that would just that would just make sense while we're going and traveling around so hopefully, we'll be having some hobbyists, some commercial beekeepers coming in to talk about their specialties, maybe some of their interests. Hopefully, we're gonna bring in some scientists, not just within the state but around the world. And we'll bring them in based on everyone's interest.

Jamie 18:25

Amy, I think that's absolutely key. This is not a podcast for Florida beekeepers. It's a podcast for all beekeepers. Obviously, we want Florida beekeepers to benefit; we're Florida centric ourselves. We're here at the University of Florida. But you're right. Cameron, I think you alluded to it, we travel a lot. We do travel a lot. So there's lots of opportunities to interview beekeepers around the country around the world. But it's not just beekeepers, I mean, who else will be coming and joining us on our podcast,

Amy 18:49

Probably some master gardeners, master gardener volunteers talking about some landscape, good plants to plant, maybe some invasive species specialists. I mean, what else do you guys think we should do?

Jamie 18:59

I think scientists obviously we have so many scientists visiting our lab. You mentioned that a little bit earlier. But also we have the opportunity to have scientists join us through the phone we go elsewhere. And I think that's key because Cameron like what you said we really want - listeners we want your input, you need to tell us what you want to hear and we will do our best to facilitate that. So there's a scientist out there studying something, you know, studying a topic that is relevant to all beekeepers. So if nutrition is the issue you want to hear about and this the management segment of the podcast, we - Amy will try to find someone who's a specialist in nutrition, interview them, right?

Amy 19:31

Yeah, definitely. And if if we have no requests, you all will just have to sit here and listen to some phrases from Monty Python.

Dr. Boncristiani 19:41

And the way to do that to happen is engagement. You guys at home listening this things and have questions you have your day by day or routines and you have things that you want to know about it. Please don't fear to reach out. We have our Facebook page we have our Instagram page on all the social media of the lab, we're going to have phone calls, that beekeepers and everybody's going to be able to call in. And we're going to have questions real time.

Dr. Cameron Jack 20:13

And I also think it's important to note that, I mean, Jamie already said this, but we don't know everything about everything either. The beekeeping world is really, we're a shared community, we were all trying to kind of accomplish and keep our bees productive and healthy. And if there are things that



beekeepers are finding that really does work for them, I mean, we that's the kind of stuff we'd also like to hear about and share and talk about. And so we can kind of pass that information to other people,

Dr. Boncristiani 20:40

Most of the great majority of the things that I do here, depend on the input of people, or my research, for example, come from input from commercial beekeepers. So this is very important to have this engagement to move forward with this podcast is the only way that we can deliver, if we know what you guys have. We want.

Jamie 20:58

Yeah, so Humberto, just like what you said, I mean, there's multiple ways that the audience can be engaged with us, number one, and we might just meet them on the street at our various extension events, but of course, that's somewhat limited. We don't see all beekeepers everywhere all the time. So for those who aren't here and know us personally, they're able to reach us multiple different ways. For example, you mentioned an email address. So let's what's the way that the people can send us questions via email? What's our email?

Dr. Boncristiani 21:19

The email is honeybee@ifas.ufl.edu

Jamie 21:21

That's honeybee@ifas.ufl.edu. And that IFAS, I-F-A-S? Right?

Dr. Boncristiani 21:31

Exactly.

Jamie 21:32

Great. And they can also reach us on our Twitter, Instagram, and Facebook accounts @UFhoneybeelab. @UFhoneybeelab. So there's multiple ways that you our audience members can be involved in our podcast. So we are super duper, duper, duper excited about bringing this to you. We really want your input and your feedback. We're already having a good time putting this thing together, we're going to learn a lot. And this is true extension. Extension is not just one group of individuals preaching to another group, it is a partnership of teachers, learners, the lines between teachers and learners becomes fuzzy as we bring in experts to help you. And again, we're just very excited about doing that.

Amy 22:19

You're listening to Two Bees in a Pod brought to you by the University of Florida's Institute of Food and Agricultural Sciences honey bee research and extension laboratory.

Jamie 22:33

We have now reached that segment in Two Bees in a Pod where we are going to do our best to answer questions. So how this section works is we receive questions from our listeners. You can do that through email, you can do that through our online media accounts. You could also do it from face to face, we take those questions and do our best to answer them. Now, of course, not every question is going to be relevant to every beekeeper. There will be some that are very kind of beginner beekeeper focused, some that are commercial beekeeper focused some that are just simply about bee biology or things that you may not think are immediately relevant to your management strategies for bees. But nevertheless, we want to be able to answer every question that we receive. We're going to do that to the best of our abilities. I want to remind you that we work for the University of Florida. So all of our answers will be research based. And there will be times frankly, that we don't know the answer and all we're able to do is speculate. And we will tell you, when we are speculating, just to be fair. As a warning, we're going to do our best to answer your questions succinctly. But then we reserve the right to ramble just a little bit as we kind of discuss our feelings about that question and the answer that we give. So with that background, Amy, we just started our podcast. This is the first episode how is it possible that we even have questions in the first place?

Amy 23:44

Well, Jamie, maybe you should try getting a Facebook account and opening one up.

Jamie 23:48

No such luck.

Amy 23:51

So that's just kind of the the blessings of having social media and Facebook, we've got about 5000 followers on Facebook, Twitter, and Instagram. The other day we posted a picture. All it was was a picture that said, we're gonna put a podcast out, what are you all interested in?

Jamie 24:06

And people responded to that?

Amy 24:07

People actually respond.

Jamie 24:08

Fantastic. You're listening without listening. That's great. So we're excited about that.

Amy 24:13

Yeah. So we actually put that post out. We got questions. And so what we'll probably do is just I'll ask you guys a couple of questions. You let me know how you feel about that.

Jamie 24:22

I think we can do that, Cameron? Humberto?

Dr. Cameron Jack 24:24

Great. Awesome.

Amy 24:25

All right. So one of our questions that we had was about a flow hive. They just bought a flow hive and so they're wondering, what do you all think about flow hives?

Jamie 24:32

Well, I'll tell you I remember the first place I was when I received the first question about flow hives these are remarkably popular hives when they first came out the videos and the emails just were spread around the beekeeping world. And so what is the flow hive? A flow hive is a modified hive with modified frames that allow beekeepers from the outside of the hive to harvest honey. And they do this essentially by putting a crank into the hive cranking that hive, which pops the frames, a bit askew. And then honey flows from those frames out of a tube out of the face of the hive. So you literally can go to your hive, turn a tap, and fill a jar with honey. Now, of course, this is a beautiful idea. Everybody likes this idea that they go to their hive they turn on the tap and honey comes straight out. But is it practical? So the short answer to that is, is it's yes, it's practical, I think, but mainly for the niche hobbyists, those individuals who kind of want to have bees around, but not necessarily manage them heavily. They want to be able to go up to their hive, collect honey easily, maybe even fresh honey that they're able to collect that day and use on a biscuit later that afternoon. But for commercial beekeepers, I don't think it's really a relevant or useful tool at the commercial level, because it's really labor intensive.

Dr. Cameron Jack 25:52

And I would say part of the issue that I might have with with flow hive is if you are an a novel or novice beekeeper starting out with a flow hive doesn't seem to be the best thing because you really do need to learn those skills to get in and inspect your colonies health and to know even if you should be extracting honey, maybe the honey is not even ripe yet. And if you don't want to over extract too, because then you're going to starve your bees.

Jamie 26:16

Cameron, that's a great point. I would never recommend flow hives to beginner beekeepers. It seems to be marketed heavily towards beginner beekeepers, but you really need to understand how to work a colony in the first place. Because to me, flow hives are kind of that next step of colony management again, I'm not saying they don't work, I think they do exactly what they're advertised to do. And the good news is we even have one here at the University of Florida, we're going to put bees in it in spring 2019. And we'll be able to - or 2020. And we're going to be able to generate some data and just kind of get a feel for how they work. So, succinctly, I think they do exactly what they're advertised to do and we're excited about testing one out ourselves.

Amy 26:50

Hey, so on that note of the honey supers, another question that we had was whether you can use oxalic acid treatment on the supers or not. I figured that would be a question for you, Cameron.

Dr. Cameron Jack 27:00

Sure. So oxalic acid is an organic chemical that it's actually found in a lot of plants. It's easy for beekeepers to buy, I mean, you can and should buy them from beekeeping suppliers, but you can actually go to your hardware store and buy oxalic acid, which is used as a wood bleach. So I would, at that point, just say oxalic acid, just because it's organic doesn't necessarily mean it's safe. And you really do need to protect yourself. But for as part of the question of whether you can use that with honey supers on I mean, the answer is actually no. I mean, if you look at the label it very clearly states do not use while honey supers are on the colony. Honey, if you sample honey, you can find oxalic acid in them even when you're not treating with oxalic acid. However, when you are treating if you are not using the correct dose, it could really cause a problem, especially if you're going to sell that honey and put that to market. So you - the answer is no. And you should probably be careful with using something like oxalic acid with honey supers on.

Jamie 28:08

Cameron, I think something's worth emphasizing exactly what you said you must follow the label, the label is law. And so the label is meant to protect three things really, in this case, number one, you want it to achieve the control. That's number one. Number two, you want to protect the thing you're trying to protect in the first place. If you use it incorrectly, you might kill bees. And number three labels are written in a way to protect the user. So I see a lot of beekeepers doing things with oxalic acid that I don't think they should be doing. So you know, they're thinking it's a natural compound. It's safe for me, but I just feel like they're applying in ways that are not consistent with a label which is detrimental to their health.

Dr. Cameron Jack 28:41

Yeah, absolutely. One of the legal applications of oxalic acid is vaporizing, where you're basically turning this solid into a liquid and into a gas. And then you're putting that inside the hive. And so in order to do that, you do need to protect yourself, I mean, with full protection for your skin for your eyes, and you need to wear a real respirator not just a particle filter, it would need to have an organic vapor filters. I've accidentally pulled mine off just a little a hair too quick and took a little quick breath of oxalic acid and I couldn't stop coughing for about a half an hour. So you really need to take care, protect yourself because your bee's health is not above your health. So protect yourself.

Jamie 29:27

So that's a great question from a listener. I just want to emphasize that we'll be talking about Cameron's research in future episodes. And we're going to really go into great detail about oxalic acid in the future.

Amy 29:35

When we were talking about the label is the law, there's a lot of research that goes on behind making that label on that note, another question that we had was: People are hearing about parasitic mite syndrome, can you guys tell me a little bit about that? What is that?

Jamie 29:50

Yeah, it's interesting that that came up as one of our first questions. Parasitic mite syndrome is really a term that arose, I would say, about a decade ago and it really is used to describe essentially heavy infestations due to Varroa. Varroa are difficult to see. So one option is you can go to a colony see them, you can sample for them and count them. But there are other signs of disease that accompany Varroa. And one of those, for example, is deformed wings among a lot of the adult bees. Another of those is what I call molten brood where you actually look at the developing brood in the brood cells and you see that they're sick or diseased and kind of falling or melting to the bottom of the cells, you also get the spotty brood patterns. And so collectively, these form the signs of disease associated with the term that we use when we say parasitic mites syndrome, or the acronym PMS, but Humberto, you got some feelings about parasitic mite syndrome, because you've been seeing beekeepers kind of use the term slightly differently depending on who's the individual you're discussing the concept with at any given moment.

Dr. Boncristiani 30:50

Yeah, the whole problem comes from all these signs that you mentioned individually can be explained by other causes other than Varroa. And then in the field with every single individual beekeepers, they start to create their own version of the syndrome, and so associating the different symptoms or different things that they see that they think is the signs that people are talking about. So every place I go, I feel that the beekeepers have a different standard for the syndrome. The same happens with other problems in beekeeping, like here in the state of Florida, we have the crud, apparently, is a bacterial infection. And then when every place I go apparently the beekeepers show me a different sign of what they call the crud. So it is very difficult in beekeeping, they have many variables that will work together to show a phenotype, something that we can see, people have different approach and every operation show different symptoms. So they have different standards, every place I go, they have different standards.

Jamie 32:01

So I think the take-home message is that you, as a beekeeper, should be monitoring for Varroa in your colonies. And when you hit damaging economic thresholds, which is usually somewhere in the neighborhood of three mites per 100 adult bees, you should treat with legal products according to label and that will help address parasitic mite syndrome in your hives.

Amy 32:18

Great. And I think we have time for one more question.

Jamie 32:20

Okay, let's go for it.

Amy 32:21

All right. So the last question we have is about small hive beetle. And people are wondering, how effective are beetle blasters and swiffer sheets?

Jamie 32:30

So I'll take first stab at that. I did my PhD dissertation on small hive beetles when I lived in South Africa. So I've been working with small hive beetles for a while. So there are a couple of ways to try to address small hive beetles one of those ways is chemical. The good news about the legal chemicals: they aren't very good. And why do I say that's good news? That's forcing us to try to address small hive beetles without using chemicals. So that has led a lot of people to develop traps. So beetle blasters are one of many types of traps that people put in colonies to try to capture the adult beetles. So rather than speak about beetle blaster specifically, I'll just broaden and say all beetle traps, capture and kill adult small hive beetles. And frankly, I think that's a good thing. And they usually do it on the cheap. They're not very expensive. You can put things such as vegetable oil or mineral oil into these traps. So those are not toxic to bees unless bees are submerged in them. So to me, the traps can only help they cannot hurt. So I don't think that you can control beetles particularly well. You're not going to eliminate all adult beetles, but I do think they will tax beetle populations. I'm a fan of beetle traps.

Amy 33:21

So how often would you say that you need to go in and check the beetle blaster?

Jamie 33:39

Yeah, so, in Florida, we worry about beetles specifically from about mid-summer through fall. And when those times of the year around, we have beetle traps in colonies. And I don't make a point to service traps regularly. I just make a point to look in traps when I'm in hives. When I'm doing my natural management, I look at the traps, does the oil need to be replaced? Are there lots of beetles in it? Etc. So the question is should you then cross the use of those traps with other things like swiffer sheets? The swiffer is just this generic term for this fabric or fibrous sheet that you'll put in the hive. The bees will tussle up and beetles get stuck in it, and Humberto, you have some experience using those, they capture beetles, don't they?

Dr. Boncristiani 34:20

They do capture beetles. They do. But they're dependent of something very important that hygienic behavior in the hive. If that hive do not make them a maze, don't touch them to try to eliminate them they do not create an environment that for the beetle to be caught, I always tell the bee biologists, the main thing the beekeepers need to understand and be able to see if the trap or whatever solution they're trying to use in their hives are really effective, based on for example, this one. If you put the fabric there and the bees are not touching that and beetles cannot be caught. And that's a problem. The same happens with the beetle blaster or any of these, if you put the traps too far away from the corners of the core of the hive, the beetles is the chance to be trapped in that position. So the positioning of those traps is important. The biology of the bees is important for the - so there is a lot of

other components that I think beekeepers need to be paying attention more regarding the traps for the small hive beetle. And at the end of the day as Dr. Ellis said, I don't think it hurts they capture, but I'm not sure they can control effectively infested hive infestation, for example.

Jamie 35:46

You know, honestly, I think that's essentially the take-home message for all beetle traps and things like the swiffer sheets, essentially, they capture and kill adult beetles. The question is, do they control them? And unfortunately, the type of research projects necessary to do to answer those questions are very difficult to do. So a lot of these things we know capture and kill adult beetles but we don't know the extent to which they control or limit beetle infestations and stop associated beetle problems. That said, they're cheap and easy and relatively non-toxic to use. And so I certainly advocate them in areas where beetles pressures are very high.

Dr. Boncristiani 36:21

Doesn't hurt and just learn how to use it.

Amy 36:27

We'd like to give an extra special thank you to the following: to our editors Shelby Howell and Bailey Carol. And for audio engineer James Weaver. Without their hard work Two Bees in a Pod would not be possible. So thanks, guys.

Jamie 36:40

For more information and additional resources from 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 our podcast Two Bees and A Pod.