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SPEAKERS

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

Jamie 00:10

Welcome to Two Bees in a Podcast brought to you by the Honey Bee Research Extension Laboratory at the University of Florida's Institute of Food and Agricultural Sciences. It is our goal to advance the understanding of honey bees and beekeeping, grow the beekeeping community and improve the health of honey bees everywhere. In this podcast, you'll hear research updates, beekeeping management practices discussed and advice on beekeeping from our resident experts, beekeepers, scientists and other program guests. Join us for today's program. And thank you for listening to Two Bees in a Podcast. Hello, everyone, and welcome to another episode of Two Bees in a Podcast. I'm really, really, really, Amy, like really, really, really, really, excited today.

Amy 00:55

Are you really?

Jamie 00:56

Yeah. Really excited today to be joined by Virginia Webb. I've known Virginia for, gosh, I hesitate to speculate, probably over 25 years at this point. Because we both are from Georgia, and when I was a young bee scientist in Georgia, I would work with her and her husband on beekeeping projects at the University of Georgia with my supervisor at the time, Keith Delaplane. And Virginia, you and I have even seen each other around the world at various conferences. So it's really exciting to me to be able to welcome you on Two Bees in a Podcast. You have a business called Mtn or Mountain Honey. It's located in Clarksville, Georgia. And the key reason that we wanted to have you on today, Virginia, is because you are, gosh, I'm going to say, a world expert in adding value to honey and honey products. And we're going to talk all about that so beekeepers can benefit. But before we get there, I just want to say thank you, and welcome to Two Bees in a Podcast, Virginia.

Guest 01:56

What an honor it is to be a part of this wonderful podcast that you've started. I've listened to a number of the podcasts that you've had over the last year or so. And they are so informative.

Jamie 02:07

Well, thank you, Virginia. And like I said, I'm really excited to have you on. You're a longtime personal friend. And it's just really neat to be able to interview you because you really are skilled in this area. We are trying this year to share with beekeepers around the world alternative ways or additional ways that they can make money with their bees. And sometimes it's things they're already doing if they could just step it up a little bit. You're really an expert on this with honey products. But even though I kind of know you well, and we've had a multiple decade history, our audience, our listeners want to know a little bit more about you. So before we get into why we brought you on to interview you in the first place, could you tell us a little bit about yourself, how you got into beekeeping and how you got where you are today?

Guest 02:50

Well, I'm a third generation beekeeper. My father, Joe Stephen, he gave me my first beehive in 1963 as a birthday gift. So for nearly 60 years, I've been involved in the beekeeping industry. In those days, my dad and I were just hobbyist beekeepers. We kept as many as 75 hives, selling honey and honey products at fairs, festivals, and even on our back door. Currently, I manage about 200 colonies of bees that are located in the mountains of Northeast Georgia where we produce what I think is the best honey in the world. But my late husband and I, we also are Russian bee breeders. And that's a different bee to have within the industry today. But it's a great bee and they make great honey. I've had the opportunity to have my Sourwood would honey awarded five gold medals at five different honey shows sponsored by the Apimondia. I'm also the only individual in the United States to hold three master beekeeper certifications, University of Georgia, the University of Florida, which I got from you, Jamie, and Eastern Apicultural Society.

Amy 04:05

Virginia, I am so amazed. I feel like Jamie is totally right. We need to have you on multiple times this year, I think, because we could probably talk to you for days.

Jamie 04:16

It's funny you said Amy, I keep thinking we're having her here to talk about honey, but we could bring her on and talk about wax production and Russian bee production. And so I've got to temper my excitement and make sure I stick to the script. Virginia, I'm talking to you specifically about honey but Amy, I'll let you take it away.

Amy 04:33

I know. I'm also cracking up because Virginia said, "Oh we were just backyard hobbyist beekeepers, we had 75 colonies. For a lot of people, that's a lot of colonies for just being a hobbyist. So I applaud you for that, Virginia. When I was looking for information about you, all I did was google Virginia Webb. Virginia, I don't know if you know this, and you probably do, but the first thing that came up was an article that said the World's Best Honey. And Jamie had told me about you. I've heard your name around the beekeeping world, and so you are known as an expert in honey, internationally. And so that takes me to my next question of how did you get involved with honey production?"

Guest 05:18

Well, I've always been a honey producer. I know that there are different types of beekeepers. There's pollinators, there's bee breeders, but the main byproduct of the honey bee, is, of course, honey. The

need for locally grown honey has been increasing over the last 20 years or more. Customers want to know where their food comes from. And they want to be ensured that that honey is safe and a healthy choice for their family. So for myself, producing honey is the natural thing to do with honey bees itself, and I've been a honey producer, virtually, my whole beekeeping life.

Jamie 05:59

Virginia, your honey is really good. And this starting to sound like an advertisement because every time I say something, I'm praising you about it, but your honey is really good. You take a lot of pride in producing it. But before we talk about how you do all of that, could you share a little bit about the types of honey products you produce? Right? Do you just produce liquid honey? Do you just sell it in certain sized jars? What are the honey products that you have branched out into these days?

Guest 06:26

Well, honey products have changed over the years. It used to be in the 1800s and probably a good part of the early 1900s, the main honey that was harvested on the beehive was comb honey. It's still a very popular product to have, and it's an important product, I think, for a honey producer to sell, also. But that's sort of changed with the invention of the extractor where we extract the liquid honey from the comb and put it in a jar. And that has been increasing over the year where we've been moving from comb honey production to liquid honey. The honey that we produce here in Northeast Georgia, and there's some great honey all over the world, but we have two honey seasons. The first one is the spring wildflowers, and that includes all the flowers that bloom, the clover, the locust, the blackberry, the apple, tulip poplar, and we just mix that together and call it our wildflower honey. In the middle of the summer time here in Northeast Georgia and Southwest North Carolina, East Tennessee, Eastern Virginia, we have an artisan honey, or you may call it just a local honey, called Sourwood. And that's our premium honey. It blooms in the middle of the summer time when there are very few other nectar producing flowers blooming. But you're going to find specialty honey all over America, anywhere from Tupelo to citrus honey in Florida, basswood, fireweed up in Alaska and Montana, to sage honey. There's a great honey everywhere.

Amy 08:06

You know what's amazing, Virginia, is as you're describing these honeys, I almost feel like I can taste the honey. You're talking about the different berries and just the different crops, and as you're naming them off, I feel like, mentally, I can taste my mouth right now, which is very strange to say.

Guest 08:24

And honey reflects the territory which it came from or the towards, what we sometimes say. It's the flavor of the landscape. When you're tasting local honey, you're tasting the flavor of where that honey comes from.

Amy 08:39

Absolutely. So in your description, when you were telling us about yourself, you were talking about the different honey shows and the different awards that you've won. And I know that you've entered many shows around the world. And so I was just wondering if you could share a little bit more about, I guess, your involvement in honey shows and just your experience on how it has helped you create a better product. I think, many of our listeners do know, obviously, that honey bees create honey. We have lots

of value added products from that. But I don't know if many people realize that there are honey shows around the world.

Guest 09:14

Oh, absolutely they are. Honey shows probably developed from fairs in the Middle Ages, or where they would bring their products into a farm market just to see who had the largest tomato, the fattest pig, the biggest watermelon. Fairs developed over time, certainly in the 1800s when it came to large fairs, the Great Exposition that was held in London by Prince Albert with a great kickoff to having wonderful expos of fairs and fair products. What's really nice about being at honey shows is that you get to see other beekeepers and the products they have. I've won many awards all over the world, and I'm very proud of them. But when you compare your honey, you're also being able to see how your honey stacks up against others. And that doesn't mean that your honey is better or more valuable. It's just to have a great point of seeing how your honey compares to other beekeepers throughout the world. I've spoken to beekeepers in New Zealand, Greece, Denmark, Argentina, Ireland and Egypt, and we all have the same goal of keeping healthy bees and making great honey. Beekeepers also use, as I do, some of these awards as not only bragging rights at your local bee club, but also as a marketing tool, letting people know that you're a prize winner at a local fair or a honey show.

Jamie 10:49

Amy, Virginia and I have overlapped at a lot of meetings and have had honey shows, and anytime Virginia enters a honey show, it strikes fear and panic into the hearts of a lot of the other participants because she's so good at showing these things. Every time I've gone to some of these as the invited speaker, and I just sit back there. "First place in this category: Virginia Webb. First place in that category: Virginia Webb." Virginia, you've just always taken so much pride in it. But listen, honey shows are great. I think we even interviewed Michael Young from Northern Ireland about honey shows, maybe a couple years ago. But you've really taken the art of showing honey to your product to improve your product. Before we get there about that, what are some of your most memorable experiences in the world of honey shows? You've won a lot of gold ribbons, you've gone all over the world, so what are some of the key things that have stood out to you?

Guest 11:43

Well, I have to tell you I did have the wonderful opportunity, especially with my late husband Carl, to be able to travel to all parts of the country and certainly, internationally for honey shows. The first world honey show I ever entered was in Dublin, Ireland at the Apimondia. They are the ones who host the World Honey Show, and I was honored to take home the very first gold medal to be presented at a World Honey Show. That was for my Sourwood honey. But there are other, again, like I said before, some great local shows that are around the US. Eastern Apiculture has a great show, the American Beekeeping Federation hosts the National Honey Show, I was just at the Hive Life, and they hosted another good honey show there, as well as local clubs or fairs may have them. Some of my most favorite awards, though, I mean, besides being the first ever gold medal at the World Honey Show in Dublin, Ireland in 2005, is also just at my local club. Winning the black jar is a really great honor. And that show right there, that honey contest is judged just on taste. That means the taste of the honey, they think, is the best there is.

Amy 13:06

So what do you believe makes your honey and all of your other entries stand out from the others?

Guest 13:13

Certainly, following the rules. I do have a number of YouTube videos that help teach individuals on preparing their honey and wax entries for show. You need to read the rules. That, to me, is the beginning of being able to show your honey. I've been to many honey shows where people bring their honey in and the fill line is not correct or they put it in the wrong size container. Later this spring, I'm going to be rolling out another YouTube video that will be a masterclass on preparing honey show entry for the World Honey Show. That's probably going to be in late spring, either April, May, or possibly even June. That's going to give people little helpful hints on how they can present their entry and make it be the best they can.

Jamie 14:04

So, Virginia, none of this happened overnight, right? You kept bees for a while, you started getting very interested in this topic, interested in the topic of producing a very premium product, so you started training, you started teaching on all of this, helped you ultimately make a better product. So could you talk a little bit about some of these educational opportunities or workshops you've been involved, both in teaching, but even from the very beginning in taking where you were the student?

Guest 14:34

Some of the first classes that I ever took keeping bees back in East Tennessee was talking to children, and that's my real passion is teaching young people about bees and beekeeping. For more than 50 years, I've been teaching children about the importance of honey bees in our food chain. Recently, I saw a survey from Land of Lakes that showed that one out of six people in the US have never met a farmer. Well, I'm a farmer, and I want to share with as many people as I can the importance of keeping bees and keeping a healthy farming community in the United States.

Amy 15:13

I think that's fantastic. I think it's always fun to speak to beekeepers, because not only are they creating their own product, they're running a business or marketing their information, but also they provide education. And so we really appreciate that Virginia, just, you doing your part, working with kids, working with youth, and teaching them, "Hey, I'm a farmer, and you know a farmer now." So earlier on in the conversation, when we were talking about honey shows, and I've actually heard this quite a bit from people who have placed in honey show awards is that they use it to help promote their business. So I've actually seen some of the people that have gone through even the University of Florida honey show, they won awards, they have a ribbon, and then I'll go visit them at their business if they have a brick and mortar, or if they just have a pop up stand somewhere. And I love seeing that ribbon as part of their marketing. And so I wanted to talk just a little bit about where you market your product, where you sell your products, and if you could talk just a little bit about some of the strategies to market and sell your products.

Guest 16:21

First of all, honey sells itself. It's one of nature's oldest foods. It's a food that's recognized throughout the world. It's wonderful to be able to go to a farm market and people say, "Oh, there's the beekeeper. They've got honey." But they notice they've got a wholesome product that's out there. At my home, I

have a little self service honey stand, it's in the shape of a beehive, only a lot bigger. And that's where you come and you just take your honey and leave your money. I'm fortunate enough to live between two major state roads. It's a little cut through road that people drive by, and they stopped by to pick up honey anytime of day or night. There's a nightlight in there that lets people see the honey so that they don't have to use their headlights of their car. And it's been a great selling device that I have the opportunity to sell honey at here at my home. When I'm selling honey, I want to make sure that if I'm dealing with a person face to face, that they can see the product. I want it in a clean container. I want every jar of honey that I fill to look like best honey in the world. And I want it to taste that way too. Giving that little taste sample really helps solidify that honey sale that you're doing with a customer. But I also give information to my customers that can help them use honey and honey products in their daily life. And that includes recipes from the National Honey Board. They are available for beekeepers throughout the United States, these little brochures that you can get for free. I like that word "free." It helps individuals know not just honey and tea or on top of a bread, but it can be used in sauces and baked goods and in other recipes that they may have. That's one of the things I like about selling honey. I'm also an e-commerce site. Mtnhoney.com is my website. And I literally sell thousands and thousands of jars of honey throughout the world every year through my internet, and I try to describe the taste of the honey on the internet. But when people buy my honey, they know that it's going to be the best honey there is. I wish I could sell cappings honey. You know, that may be a product I should sell. I know that I have a favorite customer in Florida that likes it.

Jamie 18:47

So Amy, I feel like I need to elaborate on that. Actually, the whole time, Virginia, you were talking, I was thinking about that. For our listeners, when I was an undergrad at University of Georgia, Keith Delaplane collaborated a lot with Virginia's late husband Carl, Carl Webb. I was up there quite a bit. And it seems like we always managed to schedule field research when Carl was extracting his Sourwood honey, and I would just sit in their honey house and eat the cappings that were coming off the machine and see this uncapping Sourwood honey. So kind of as a sweet gift, the two of you have continued every year, and now, you, every year sending me a jar of honey of just cappings of Sourwood honey.

Amy 19:25

That is so funny.

Guest 19:26

My wife and kids and I eat it about as quick as we receive it, and it's just a really good memory of some great days. One of the things I really liked, being able to visit your house so many times over the years, is that you and your late husband Carl had developed a little roadside stand where it was an honor system. Consumers could just drive up into your yard and buy a jar of honey and put money in a box and that was that. I really felt that was a creative and clever way of giving out honey. So, Virginia, I want to kind of turn this conversation back around to, okay, you've got beekeepers from around the world listening to you. They're enamored with your honey, they're marveling at your ability to win all these honey shows. But I think what they love to hear is what you feel are key components to taking what is just an ordinary jar of honey and making it something that the consumer just has to have. What are those recommendations that you have for beekeepers who are interested in honey production, but also interested in adding value to honey? The word honey sells itself, but if you can romance the story,

tell people the work that goes into harvesting the honey, selecting the right location to move your bees, making sure that if you're doing an artisan honey or a single source nectar, that you're putting dry combs on that beehive during that time so you can achieve the highest goal of getting the best honey that you can from your bees. Making sure that the bees are also with healthy is an important part of it, too. But I can't think of a better time for beekeepers right now to be in the honey production business. More and more people are recognizing the value of using pure local honey instead of using refined sugar. Beekeepers today, if you're in the honey selling business, please look at the different types of containers to use. There are some new innovative containers that are on the market. Certainly, the Honeybear was invented in 1957 by Mr. Gamber, it's the most recognized container in the world for honey. But there are many new containers that are available. Self-service, or, I'm sorry, single-service containers, people want that convenience of being able just to grab something, and they use it as a one time usage for a container. Infused honeys are also very popular today, anywhere from tumeric to lavender to spices. There's some great infused honeys that are out on the market today. Lotions and potions are another thing that beekeepers, especially if you're selling locally, you should learn to do. That could be lip balm, soap, baths, even furniture polishes. And by the way, your highest profit can come from lotions and potions. And don't forget the beeswax, another important byproduct of the honey bee. Seasonal items, like we're coming up on Valentine's Day, little hearts to add to your honey sales and your container make a really good item for a seasonal attraction for a buyer for honey.

Amy 22:50

I love it. I love seeing honey at stands, at supermarkets and working with beekeepers. The more I learn about honey, I think, I just sound so cliché, it's just so beautiful. Every single piece of it, I'm thinking about comb honey and how gorgeous that looks. Sometimes it looks so nice that I don't even want to touch it or eat it.

Guest 23:13

And by the way, Amy and Jaime, I wanted to ask you something. Do you know what the very best honey in the world is? What kind of honey is the best honey in the world?

Jamie 23:25

So Amy, I've heard Virginia ask this question, and I know the answer. So I'm going to let you answer the question.

Amy 23:32

I was just going to say, is it your honey?

Guest 23:36

It's the honey that comes from your own beehive. You're never going to have anything that's any better tasting than those girls that are working out in your backyard and bringing in. That's what I think is the best honey in the world.

Amy 23:51

I'm going to run my own honey show, and I'm going to give myself an award for the honey that I produce. How about that?

Guest 23:56

Sounds great. Well, thank you both, again. What an honor, again, it is to be speaking with you. I'm loving the fact that we're talking about honey and the uses of honey and honey shows. So that's a great way to show off your awards. And that could be anything, any type of award that you get at a honey show. There's some great things out there, some great shows out there. Florida has some great shows, Georgia and many of the national organizations, they host large honey shows.

Jamie 24:28

Well, Virginia, it's been an absolute delight and honor to be able to have you join us. I know that there's beekeepers out there everywhere who've been listening to this podcast episode who may be getting some ideas, some of the pointers that you said. For example, investigate some of the new containers that are out there, consider entering your honey shows, which by default, helps you learn how to improve the quality of your honey, and I think you're a master of that. These websites that you mentioned, these videos that you're producing soon, we'll keep an eye out for that. But thank you, again, so much for joining us on this episode of Two Bees in a Podcast.

Guest 25:01

Thank you, both. I appreciate it very much and have a honey of a day!

Amy 25:21

Jamie, I think this may be -- no offense to you -- this may be one of my favorite series. I like Q&As, I like Stump the Chump, but I love talking to beekeepers about their businesses. It's so cool.

Jamie 25:34

Yeah, I mean, absolutely, Amy. I think, first of all, it's valuable for us, because we learn a lot about the industry. But more importantly, I think it's valuable for our listeners. I just think about what Virginia was sharing. There's like five or six things that if I were a honey producer, just right off the bat, that I would love to do. I'd love to set up a roadside stand at my house and sell my own honey. Number two, just the jar thing she said. I hope people don't overlook little nuggets of truth like that. I know people who will sell a pound of honey in a standard honey jar and make \$10 for it. And then that same pound of honey sold in a specialty jar might be \$20. And they doubled their profit on the same amount of honey just because they used a fancy jar. And Virginia's talk, as well as so many of our other interviews with other beekeepers, they're sprinkled with those little things, that if beekeepers just heard them, might have given them an idea on how to improve the profitability or the health of their colonies or whatever it is that they're trying to accomplish.

Amy 26:30

Yeah, I mean, I think presentation is everything, like you just mentioned. I think that's a huge piece of what the honey show is, right? And so a lot of the rules are the quality of honey, but also the way that they're presented.

Jamie 26:43

Absolutely, absolutely. And I was excited to have her because Virginia really is among the best. She's been doing it a long time. When we talk about honey shows, like you mentioned, a lot of people look at honey shows as a side thing that you can do at beekeeper meetings, but Virginia took it very seriously.

And her desire to do well in honey shows bled over to the quality of the products that she was making. I mean, think about it. Even if you only win or only compete in your local county honey show or regional or district honey show, you're able to put a sticker on your jar that says, "Best honey in the county. Best honey in the city. Voted best honey in the region or best honey in the country," in her case, Virginia's case, among the best honeys in the world. So that's really what honey shows do for you. She did that, she did it well, and it just translated into a premium product that she's able to get a premium price for, and it's really benefited her, her bees, but also the consumers who go after her products. They get a good quality product, and I think everybody wins in those circumstances.

Amy 27:46

Absolutely. And you know what else? I think that you need to share those cappings with me the next time you receive some Sourwood honey cappings.

Jamie 27:55

Good luck with that. I take those instantly home, and we go after that there.

Stump The Chump 28:03

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

Amy 28:12

Welcome back to the question and answer segment. Jamie, the first question we have is what happens to a foundress Varroa after she emerges from the cell with an adult bee? So before you answer that question, can you please tell us what a foundress Varroa is?

Jamie 28:28

You got into my head. That's totally what I was going to do. I was going to say, before I answer that question, let me share what a foundress Varroa is. Well, there's there's generally speaking, two stages that we refer to with Varroa females. There's the foundress stage and the mobile stage. And foundress stage is when the adult sexually mature female Varroa goes into an uncapped brood cell, goes under the developing larva, when the bees cap over that cell, she crawls out and starts feeding on the developing individual laying eggs and reproducing. Right? So that's the foundress mite. That's essentially the mite who went into and is reproducing in the cell. So the mobile stage is when that bee, if it survives parasitism while it's developing, when she emerges from that cell, she will carry with her that adult female who went into that cell and began reproducing. So that adult female is now no longer reproducing, she's riding the back of an adult bee, and that's called the mobile stage. It was formerly called the phoretic stage, but it's not actually phoresy, the true definition of phoresy. So it's better called the mobile stage. The mobile stage and the foundress stage. The foundress stage, again, think about it this way, is the reproductive part of the adult female's life, whereas the mobile stage is kind of the feeding, hanging out stage of the female Varroa's life. Okay, so the question is what happens to that Varroa foundress after she emerges from the cell as an adult bee? So generally speaking, the mobile stage will last five to 11 days. That's kind of the big window average that people cite when they talk about that mobile stage. So when the adult bee is born, she carries with her that foundress Varroa who had originally gone into that cell and reproduced on her while she was developing. So she comes out of that capped cell, the foundress Varroa is riding her back, and she might stay on that bee's back for another five to 11 days or move to other bees. But generally speaking, this is a period, probably, of rest

and recuperation where they are taking a break from reproduction, filling back up on the nourishment by feeding on honey bee fat bodies, and whatever trigger causes her to leave that adult bee during that mobile stage and go back into the brood cell, that trigger doesn't seem to be hit until it's that five to 11 day period. Okay. So the foundress, then, will go back into the cell, start reproducing and the process starts all over again. So research has shown that the average Varroa female will invade 1.5 to three cells before she dies. Of course, you can't invade one and a half cells. It's just the average of a lot of invasions. So the low end is about a cell and a half for the average foundress Varroa. The high end is kind of three cells. Of course, that's average. So that means there can be fewer invasions and more invasions. But the average Varroa will go into one and a half to three cells and reproduce in those cells, come out with the emerging adult bee, stay mobile five to 11 days before she goes back into the next cell, and this cycle happens again 1.5 to three times before the Varroa dies. And so that's kind of the general cycle of a Varroa. Yep.

Amy 31:53

So how long does a Varroa live?

Jamie 31:55

So they can live a few weeks through this process. But if you do the math, if they do three cells with an 11 day cycle between those three cells, that's at least a month. Right? And if you think about it from another perspective too, during winter, when Varroa aren't reproducing at all, right? They're fully mobile. There's no brood cells in which to hide. So they can actually last a few months in that particular cycle overwintering only adult bees, even in the coldest of settings where the adult bees themselves may live only for up to four to six months, and so the Varroa can survive on that. But it shows a couple of things. Number one, it shows the cost of reproduction to the longevity of the Varroa, right? Absent of reproduction, they can survive a few months, but when they're in that reproductive cycle, they can only live a month, maybe a little bit more, because reproduction is taxing. And furthermore, reproduction makes them, secondly, kind of vulnerable to bees. When you're going into the cells to reproduce, you are vulnerable to the hygienic response of the bees, who might uncap those cells to figure out what's going on and abort you. So long story short is that these reproducing Varroa probably have shorter life cycle, shorter lifespans than these Varroa that basically have to overwinter with the adult bees.

Amy 33:16

Gosh, that's really crazy. We say we have winter bees and summer bees. So we've got winter Varroa and summer Varroa.

Jamie 33:23

Kind of. It's kind of the same paradigm. And I'm not suggesting that there are, but I think we think about it exactly kind of the same way.

Amy 33:29

Right. Alright, so the second question that we have is, what do holes in my brood cappings mean? So this is a pretty common question. I mean, I feel like we receive this all the time where people will send pictures, and they're just holes in the cappings. And so what does this mean?

Jamie 33:44

Yeah, so it can mean quite a few things. But, just, we'll start with the easiest one, which is, when a female or a male larvae has finished eating, the worker bees, there's a cohort of worker bees whose job it is to cap the brood cells. And so cappings don't happen at the snap of a finger, right? So it takes some time to cap a cell. So seeing a brood cell capping that has a hole in it could just be, the simplest explanation is that maybe the worker bees just haven't finished capping it. So they're in the process of closing it, you caught it before it was fully closed, and it gives the appearance that there's this perpetual hole in the brood cell when there's not a perpetual hole in the brood cell. It's just that they just haven't finished. That's the answer we hope is the answer. There is another answer, which is the worker bees can detect problems in capped brood cells and start to open those cells to inspect it or open those cells with the intention of removing the cell contents because they've detected a problem that they do not want to be present in that cell. Some examples that come to mind, American foulbrood, Sacbrood virus, Varroa, any problems that lead to sick, diseased, dying or dead brood can cause worker bees to detect that problem in the capped cell and begin the process of opening that cell to go and abort the cell content. So we call this collectively hygienic behavior. And there's a third response that can be a common response too. There are two species of wax moths, the greater and the lesser wax moths. And the greater wax moth, when it's in cells, brood cells, specifically, tends to tunnel at the base of the brood cell. And when they're tunneling through the base of the brood cell producing this webbing that we associate with wax moths, this webbing can stick the developing bee to the base of a brood cell. Think about that webbing like a spider web. So essentially, you get these adult worker bees that have uncapped their cells, and they're trying to emerge, but they're struggling to emerge, but cannot. So that's the one species of wax moth. Well, the other species of wax moth, instead of tunneling at the base of the cells, tends to tunnel at the top of the brood cells. And what they will do is they'll eat the cappings of those cells, and they'll eat those cappings or right up under those cappings, kind of in straight lines. So when you see multiple cells kind of uncapped in a row, these holes in these cells in a row, it can just be by the feeding and tunneling activity of one of the two species of wax moths. If it's that, the bees will usually recap the cell. But if it's for that middle explanation, where there's these other problems, American foulbrood, Sacbrood virus, whatever, they usually will completely uncap those cells and abort the contents. At least, that's what we hope they do if they're sufficiently hygienic.

Amy 33:48

All right, so the last question that we have, so just to preface for this last question, in Florida, one of the rules and regulations is that if you've got a neighbor right next to you, if you've got bees, you've got to put a barrier out right next to your colonies. And so we have the six foot, which is two meters or so, the six foot barrier. And I guess the question is, why is there that six foot barrier with honey bees? What's the purpose of it? And why would that be a rule or regulation for anyone with honey bees?

Jamie 37:43

Love this question. It's really a simple answer. And the way that I teach this answer is think about if you've ever flown before, especially if it's your first or second time flying. When a plane takes off, it feels like it's a rocket kind of going straight up, right? You feel like your launch angle is pretty high, but your launch angle is not actually that steep when a plane takes off. So essentially, it takes a few minutes for planes to hit 10,000 feet. And then it takes a few minutes, still, for planes to hit 30,000 feet, which tends to be the cruise altitude of a lot of planes hovering around in the air if it's a passenger plane. Okay. So it takes a few minutes, essentially, for planes to hit their cruise altitude. 10, 15, 20 minutes, maybe longer depending on if it's higher cruise altitude. Okay, let's go back to bees. When bees are leaving a colony,

they have a takeoff angle as well, kind of like airplanes. And it's not as steep as you may feel it is when you're in an airplane. It's actually this gradual increase until bees hit their cruise altitude. Depending on if they're flying, for example, through forests, they might fly over forests, so their cruise altitude is above trees. But because they're not taking off at an overly steep angle, bees ascension to their cruise altitude takes them right through the height of the average human meandering around in the backyard. So why is all of this important? Well, if you, for example, live in a subdivision and keep your bees in the backyard, and the fence is not all that great between you and your neighbor's house, and they're in their backyard, etc., your neighbor could be walking around in what is the normal flight path of honey bees going to and from your colonies. So putting a six foot or about two meter barrier close to the entrance of your colonies in your backyard, in your subdivision etc., forces bees to get to a six foot or two meter cruising altitude really quickly. If you think about it, Amy, it essentially gets them up and over the height of the average human. So that two meter barrier is a way to force bees up fast so that if they're in places where people frequent, then people being close to their nest entrance won't get bombarded by bees that are slowly going up to their cruise altitude. Long story short, it's just getting bees up and over our heads quickly. Yeah, exactly.

Amy 40:30

So sorry to all those people that are over six feet tall.

Jamie 40:33

Like me.

Amy 40:35

There you go.

Jamie 40:35

But you're just trying to get bees up and over the head of people fast so that if people are going to frequent the area around the entrance of your hive, the bees won't be bumping into them and then subsequently stinging them because they're up and over them quickly.

Amy 40:51

Right. Yeah. So it's just something as a good neighbor should do, I suppose.

Jamie 40:55

Exactly. Good neighbor guidelines for siding bee colonies to keep you in good favor with your neighbors.

Amy 41:00

Absolutely. Okay, everyone. So those were our three questions for today. If you have other questions, please feel free to send us an email or send us a message on our Facebook or Instagram. Thanks for listening to this segment of our Q&A.

Serra Sowers 41:17

Thank you for listening to Two Bees in a Podcast. For more information and resources on today's episode, check out the Honey Bee Research Lab website at UFhoneybee.com. If you have questions

you want answered on air, email them to us at honeybee@ifas.ufl.edu or message us on social media at UF honey bee lab on Instagram, Facebook and Twitter. This episode was hosted by Jamie Ellis and Amy Vu. This podcast is produced and edited by Amy Vu and Serra Sowers. Thanks for listening and see you next week.