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SPEAKERS

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

Jamie 00:10

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

Amy 00:50

Hi, everyone, welcome to this segment of Two Bees in a Podcast. Today, we have Jen Hagen who is a Family and Consumer Sciences Agent for the University of Florida Institute of Food and Agricultural Sciences. She is located in Lee County, Florida. And the reason we brought her in, it's really funny actually, Jen, the reason I brought you in was because I started to see a lot of different conversations on the Florida Facebook beekeeping pages. The groups were just talking about how we have a cottage food law, and how the rules had just changed. And so I feel like there was so much information and and, it was very confusing to go through and identify what was right and what was wrong. You were really the person that I thought of when beekeepers were talking about the cottage food law and some of the rules and regulations. So I'm really excited to have you on today.

Guest 01:42

Well, thank you. Likewise, I am very happy to be here and honored to help demystify some of these topics and regulations. And likewise, the exemptions from food safety requirements for beekeepers and cottage food operators.

Amy 01:57

Well, awesome. So before we actually jump into that, can you tell us just a little bit about yourself your role with you know, beekeeping or honey bees, and what you do in your job position?

Guest 02:07

Absolutely. So I am an Extension agent, like you said, down in Lee County, which is Fort Myers, Florida. I work very closely in food systems, I do a lot of training with food safety, education, and everything in the field all the way to the fork. I help people navigate food-related entrepreneurship. So if they're looking to start a food-related business or understand the specifics, when it comes to cottage foods specifically, I can help them kind of navigate those different pieces of whatever food-related business, hobby, anything like that. And so when it comes to food-related entrepreneurship, I started to get a lot of questions from some of our local beekeepers, when they too were confused as to whether they needed to process their honey in a commercial, inspected, and permitted location, or whether they could do it at home. So one of the things I started to notice is there needed to be a little bit of clarification for beekeepers, whether they be- no pun intended, whether they be beekeepers as hobbyists, or whether they were looking to go more commercial and sell their honey retail. So one of the things that we do is we started to educate all kinds of food-related entrepreneurship. And when I started working with the University of Florida, specifically with the bee lab, and starting to teach with bee college, it became evident that there needed to be more education for beekeepers to understand whether they needed to operate under the cottage food exemption or whether they wanted to take their product retail and do it under the commercial regulations here in the state of Florida.

Jamie 03:56

So, Jennifer, this is really a great expanding topic, right? All over the U.S., folks are faced with this, probably other countries there are laws that govern whether or not they can sell direct to consumer, and in other words, cottage food equivalents as it were. But using Florida as an example kind of throughout our discussion of this topic, could you tell our listeners what cottage food is, and why beekeepers should be familiar with this concept here in Florida of course but even beyond?

Guest 04:24

Absolutely. So cottage food in Florida actually is an exemption from Florida's food safety regulations that allow people to operate a home kitchen business and only the cottage food exemption allows a very limited type of food products. So why are we talking about this with beekeepers? Well, honey is one of the permitted and allowable food products that one can process and sell under cottage food law. So basically cottage food just means that it's an exemption from commercial requirements that allows the beekeeper to process and bottle that honey in their home kitchen. But there are a couple of requirements that they have to be aware for aware of in order to do that, Jamie.

Amy 05:15

Alright, so Jen, you were talking about bottling honey. First, I guess one of the questions I have really is honey the only honey bee product that would fall under a cottage food law? What does it mean to be a cottage food operation and you had kind of discussed just bottling something in your house, right? And so just, I guess, expand on this a little bit?

Guest 05:38

Sure. So, to back it up a little bit. A cottage food operation is the residence of where the person bottling or processing that honey would be or that cottage food product. So beyond honey, let's just say somebody has an excellent cookie recipe, and they want to sell their cookies at a farmers market or a

pop-up market or some sort of venue such as that. Now under cottage food exemption, cookies, like honey are a product, a food product that do not require time or temperature control for food safety. So basically what that means, that's a fancy way of saying that they are shelf stable, they do not require baking or refrigeration for that food product to be safe. So when a cottage food operation is, is up and running, they are dealing with only limited products. And honey, the actual honey is the product that would be allowable under the cottage food requirements.

Amy 06:42

So, should I as a consumer, be concerned about what's being sold under the cottage food law?

Guest 06:48

So Amy, that's a good question. Should you as a consumer be concerned about a product that is coming out of a cottage food operation? Well, we all should be concerned about where our food comes from, because we want to make sure that our food is safe for us to consume, and we're not going to get sick. So that is why under cottage food exemption, certain products are only allowed. And it again, is a very limited list of products that are allowed, because these products are not likely to get you sick because they do not require the time or temperature control for safety for that shelf stable product.

Jamie 07:30

This is a very intriguing topic to me. When I first got hired by the University of Florida, I don't believe honey was on the list. And there was this discussion that even if you had one colony and wanted to bottle some honey and sell it anywhere, you had to have a license, to do this in a licensed inspected kitchen all this stuff, right? And then honey was added in I believe it was, Jen, you're an expert on this topic. I believe it was like \$15,000 worth of sales were allowable, then \$50,000 of sales were allowable. And now it's a really high amount, isn't it? Was it 250? Or am I making that up?

Guest 08:04

\$250,000 as of 2021. So that's kind of the amended parts of this exemption, just like you're saying, Jamie, it's gone from 15,000 to 50,000, to now today, \$250,000 of gross annual sales for cottage food products.

Jamie 08:25

So again, our listeners, I know that you're listening to us from all around the world, even within the US, this varies by state. So it's important that you check your local laws. And if you're out there listening in the world, you may also have rules and regulations related to this, but Jen, I've got this kind of question that just kind of keeps coming up. And maybe there's no answer for it. But I can extract, bottle, and sell \$250,000 worth of honey, you know, in my kitchen, but if I sell \$251,000, \$250,001 worth of honey, I have to move to a licensed inspected kitchen. I mean, it seems I just I've going to ask about the philosophy and logic of all this, it seems to me if a product is kind of safe at all, then it's safe across operation size. So, what's the motivation in the case of honey, for allowing up to \$250,000 in sales at a farmers market or however you're able to do it through the cottage food law, versus if it's slightly bigger now you've got to have all these license inspections in order to be able to sell, say, in a grocery store. So it's just it's always been one of those. Funny, I'll use the word funny one of those funny things to me.

Guest 09:04

Correct. Great and I'm just going to get to the quick of this. The \$250,000 limit really is about the threshold of sales. And when it comes to certain food products, there are thresholds as far as the monetary dollar amount that trigger you to scale your business up in one way or another. And when it comes to honey and cottage food, you have to stay at that 250 or under level. And here's why. So, and well let me back up a little bit, you have the \$250,000 limit that you have to stay below to operate as a cottage food operator. And really, Jamie, what it comes down to is, if you are a cottage food operator and you are selling honey to your consumers, you can only do direct sales direct to that consumer under cottage food. Where if you are a commercial beekeeper and you have the sky's the limit as far as how many sales and the dollar amount that you can gross each year. Here's the caveat, you are not limited to selling just to your direct consumer. When you become a commercial cottage food, I'm sorry, excuse me, when you become a commercial beekeeper, you now can sell that honey, retail. So you do not have to sell it just to your customer. You can sell it at a grocery store, at a big box store, or retail across, you know different counters of establishments that might sell food products. So that really is the key is determining who is your market? And who do you hope to sell that honey to?

Amy 11:22

So Jen, what other food products are allowed under the cottage food exemption? I mean, if I made like a honey cake, I assume that wouldn't be allowed? I don't know.

Guest 11:31

No, that would be allowed. So let me kind of break that down for you guys. There are allowable products. And some of those would be things like breads, cakes, pastries, candies, jams and jellies, homemade dry pasta, cereals, granola, and pop popcorn, things that you would be able to buy at a grocery store that again, have some kind of shelf-stable benefits and do not require heating or cooling to keep that food safe. So again, something that you might see at a big box store in the bakery department on a shelf. Does that make sense, Amy?

Amy 12:19

It does.

Guest 12:20

So again, honey has the ability to be shelf-stable. So honey can sit in our cupboards, it can sit on our counters, it can travel with us. And it does not require refrigeration or some kind of heating at a certain time and temperature to keep that product safe. So that's why, Jamie and Amy, that the honey got added to the cottage food exemption because it is considered a relatively safe and shelf-stable product.

Jamie 12:51

So in 2021, here in Florida, there was the Home Sweet Home act amendment passed. Could you could you tell us a little bit about that and how it changes things in Florida?

Guest 13:03

So the biggest thing that happened in 2021 is, and we mentioned it a little bit already, the threshold of annual sales jumped from \$50,000 to \$250,000. So that was a huge change. And it definitely gets people's attention when we're starting to increase those sales that you can have annually.

Jamie 13:27

Yeah, Amy, you asked about baking cakes, right? So that's a lot of cakes.

Amy 13:30

That is a lot of cakes!

Guest 13:32

A lot of cakes. I think we did the ratio that if you were selling cupcakes, and so say you sold a cupcake for \$5 each, and you had to make that threshold, it was something like 11 dozen cupcakes a day you would have to make to sell in order to reach that hit that.

Amy 13:53

At your house.

Guest 13:54

At your house. So you can imagine the volume and the storage that you would need to be able to meet that threshold. Now, honey is a little different. But same thing. But the biggest thing, Jamie, to answer your question, is the threshold changed for annual sales from 50,000 to 250,000. But one of the other biggest pieces that the Home Sweet Home Act allowed cottage food operators to do is it opened up how they are able to get their product to their consumers. Now, remember, under cottage food exemption, you have to sell directly to your consumer. So Amy, if you and I, had this honey cake that you were just obsessed with, I would have to meet you somewhere, perhaps in a parking lot or you'd have to buy that cake for me at a farmers' market. And I would have to physically hand that cake over to you. Now, in 2021, the biggest change was I can now send that cake to you through either U.S. postal mail or a commercial mail carrier. So I can now ship that cake to you. And not only Florida, but interstate. So that was a huge piece that now you have the option to not only advertise and sell over the internet, you now can ship that product to your customer.

Amy 15:27

That's very interesting. I'm trying to figure out so besides you had mentioned the retail aspect of it, what other benefits would I have as a commercial beekeeper to not sell under the cottage food law?

Guest 15:41

Oh, okay. So that's a very good question. And again, this is really it comes down to this. When you are a commercial beekeeper, you do not have to sell directly to your customer. So you can sell wholesale, you can sell consignment, you can sell your product in a grocery store or in a big box store. Or you can sell it to other distributors. Another thing that you need to be aware of is if you are a commercial beekeeper, you also do not have to store that honey in your house. Imagine having to have an area of your house where you store your complete inventory of honey. That's a lot of honey. And depending on your home, the size of your home kitchen, you are bound if you're operating under cottage food, to

make sure that that honey is stored within your home. That does not mean in a garage, that does not mean in a shed, that means in your residence. So commercial Beekeepers are not bound by that they can store it at a food establishment, they can store it at a commissary, or if they wanted to have their own mobile, if they want to take the show on the road and have some kind of mobile vending unit or a honey trailer that they operate out of. Or I have even seen honey vending machines, which is just amazing. But you as a commercial beekeeper, your sky's the limit in regards to where you can sell your honey. Where if you're operating under the cottage food exemption, you have to store that honey in your house. And you have to sell that honey directly to your clients or your customers or your consumer.

Jamie 17:37

All I can think about when you talk about this is having \$250,000 worth of honey-

Amy 17:43

it's so much stuff

Jamie 17:44

-sitting in my house. If you bottle all that in one pound jars, you have to sell direct to consumer 250,000 times, which means you have to answer do you ever get stung 250,000 times?

Guest 17:58

Oh my. Yes.

Jamie 17:59

When you're working directly with consumers.

Guest 18:01

And another thing that I always have people think about: your home is where you live. And obviously your kitchen is usually Command Central. Okay, and I don't know what goes on in your house, but my house is chaos. So I cannot imagine having to use my home kitchen all the time to process honey, because we know bottling honey, processing honey, it's a sticky situation. Could you imagine if you use your home kitchen all the time to process that honey? I think we would all literally be stuck to the countertop in my household. I don't know about you all.

Amy 18:40

I think my dogs would be pretty happy about that, though.

Guest 18:42

Oh, yeah, that's true. That's true. That's something to consider, where you're processing that honey and the impact on your household it may have.

Amy 18:52

So Jen, I know that you and I have been working on an EDIS publication. We've been working to revise EDIS publications to put exactly what the rules and regulations are for the cottage food law here in

Florida. There's also on the Florida Department of Agriculture and Consumer Services website. They have like a bunch of questions where you know, it's like true or false questions, right? And they give you different scenarios, which I think is very helpful, actually. So, like I said at the beginning of this segment, there was just a lot of misinformation going out there. And so my question for you is where would you go to find the most accurate information? I mean, how do you know and where do you go to find that information that is absolutely, 100% correct?

Guest 19:36

Okay, well, if you're in Florida, just like you mentioned, Amy, there are a couple of key documents that you can refer to. The Florida Department of Ag and Consumer Sciences has what they call a cottage food guidance document. And it's a PDF a four-page PDF that answers all the frequently asked questions. It has the definitions for cottage food, cottage food operations, and then it also has a lot of information that you need as far as labeling your product, the requirements of who you can sell to, who you cannot sell to, and like you said, the frequently asked questions. Through the University of Florida, we also have not only the EDIS document that you're talking about Amy, which is the bottling, labeling, and selling honey in Florida, but we also have another EDIS document that is just called Cottage Food in Florida. And these three documents are very helpful for the Florida beekeeper, whether they're hobbyist, backyard or commercial beekeeper. Now, if you are listening to us from above and beyond Florida, you would definitely reach out to not only your local Extension Service, because they can help you navigate this, but your Department of Ag, and your Department of Food Services would be able to direct you to help you in your state or wherever you may be located. Understand your unique requirements or exemptions when it comes to processing or bottling honey at your geographic location.

Jamie 21:14

That is such good advice because, we, Jen, we're here talking about Florida, we all work in Florida and we have these cottage food laws here. But there are similar laws that may be slightly different in other states. And I'm virtually certain around the world where you bottle and sell honey. In many cases, maybe even most cases, you're going to be regulated in some way to ensure safety and quality. And I think just what you said Jen is perfect. Reach out to those right folks, make sure that you're handling your honey, and maybe even hear other bee product food products correctly so it won't come back to bite you later. And also make you a better businessman or woman and much better at ensuring that you've got a quality and safe product going out to the consumers.

Amy 21:59

So Jen, just to sum everything up, can you just tell us one more time you know the difference between beekeepers operating under the cottage food law, versus the commercial beekeepers that are required to be permitted and inspected?

Guest 22:13

Absolutely. And as a beekeeper, if you're deciding which avenue you want to follow, it really comes down to three things in my perspective. It comes down to who do you ultimately want to sell your honey, your targeted audience or customer base? Where ultimately do you plan on processing and bottling your honey, the actual location of where that is going to happen? And third is, where are you going to store your end product? Because those three questions really help you to understand what you

need to do. Do you want to operate under the cottage food exemption? Or do you want to have the flexibility under the commercial requirements to be a commercial operation? So really, Amy, Jamie, it comes down to sales, processing, and storage of honey that can help these beekeepers make their decision of which way they want to pursue their business.

Amy 23:15

All right, thank you so much, Jen. And I will be sure to link all of the EDIS documents and some of the other information on our show notes after the podcast. But thank you so much for joining us today.

Guest 23:26

My pleasure.

Amy 23:28

Okay, everyone, that was Jen Hagen, Family and Consumer Sciences agent for the University of Florida Institute of Food and Agricultural Sciences, located in Lee County, Florida. She is your Florida cottage food person. So if you have any questions, we'll be sure to link her information and you can reach out to her then. So Jamie, Jen's actually one of my really good personal friends. And so you know, as soon as we have the opportunity to collaborate with each other, I was really excited about that.

Jamie 24:20

Yeah, I really love what she was talking about. It's really neat that you were able to bring her here to Florida to bee college, for example, to speak to our beekeepers. And I know that there's a lot of folks out there. Listen, I've said it multiple times throughout the interview, this is relevant for you because you might have similar requirements of you, even if you're not in the U.S. and you're listening to this. You might have similar requirements for how you process and bottle and your honey and you may be living under different constraints of who you can sell to and all this. And keep in mind, the whole purpose of this is to make sure you have a nice and safe product.

Amy 24:54

Right, right. And the other thing too, I was just thinking the whole time I'm so glad we have a contact person for that. And I feel like every state has a contact person for either a cottage food law, if they have a cottage food law, or if they want to be a certified kitchen, there are resources available for us, which I think is just really amazing. Because sometimes, you forget about those little pieces. And then you're like, "Well, where do I go to find this information?" So I think just having the resource is really nice as well.

Jamie 25:25

But one of the things that was really intriguing to me about all of this, Amy, when I first got here is, like I mentioned, honey wasn't even listed on the cottage food list. And so, in theory, every beekeeper was expected to be able to bottle and extract from these licensed and inspected facilities.

Amy 25:41

Right.

Jamie 25:42

And the beekeepers here in Florida, for our specific case, they lobbied to change that and it was changed. As we talked, it went from 15 to 50 to \$250,000.

Amy 25:53

That's so much money, I can't get over that.

Jamie 25:57

I don't even know what that looks like, but it's mind-boggling. I remember growing up in Georgia, selling my honey at farmer's markets and stuff. And I was completely oblivious to things that I may or may not be supposed to be doing at the time. So it's neat as a grown-up, to be able to hear all of this and to know that, hopefully, we're answering that question for folks here in the US, but also around the world who may or may not know that they have these regulations to address.

Amy 26:23

Right. The other piece of it that I don't think we really touched on much was that it really depends on the market that you're selling at because if you are selling at certain farmers' markets, I know that they have specific criteria that you have to follow. So maybe you can sell under a cottage food law, maybe you can't, maybe you need to ensure that you have some sort of licensing. So that's the other piece that we didn't really mention. But I do think it's very important is depending on where you're selling your project or product or who you're selling it to, to know what those requirements are. Because I used to work with growers that, that worked and sold to grocery stores, and each grocery store actually had their own requirements for what the grower needed to be able to even sell there.

Jamie 27:11

Hey, and I'll even add to that. One of the things about the intriguing the one of the intriguing things to me about the Florida cottage food law, is it expanded to include internet sales, like what she was saying and that's- -that's interesting, Amy. Originally, it was direct to consumer, you have to shake the person's hand, either at your front porch or at a farmers' market or something. But now, it's still considered direct to consumer if you're shipping it over the internet. Which, frankly, opens up a really big potential market for people again, here in Florida, those rules may vary by state or location wherever you live around the world. But the whole interview was good. I'm so grateful we have her as a resource. And I hope if you're listening out there, it really just helps you produce a better safer product

Amy 27:21

Right.

Stump The Chump 27:43

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

Amy 28:11

So we are at that question and answer time. And, Jamie, the first question that we have this person is from Ontario, Canada, and they're getting ready for winter, well, they're getting ready for fall and winter.

It's really funny because it's like, we're recording this right now. And it's so hot outside that I can't even think about, like fall and winter. It's crazy.

Jamie 28:31

Well, the whole time uptake is there from there in Canada, Ontario. So, like, aren't they always getting ready for winter up there?

Amy 28:39

That's true. I've never visited. I need to go sometime. But this person is a new beekeeper. And they're asking about getting ready for fall and winter, basically asking about pollen patties. And so, should this person be looking at adding pollen patties? Is it harmful to add pollen patties? Or is it really just the bees will reject it or just not use it if they don't want to? So really the question is should beekeepers be using pollen patties, I guess, in general, and then going into the winter? Does it help at all?

Jamie 29:14

Well, these are some tough questions. And let me just start by saying it all depends. And what do I mean by that? So I've only ever been a hobbyist beekeeper. What I tell folks is I'm a hobbyist beekeeper at home and I'm a sideline beekeeper at work. And then I work with commercial beekeepers part of my job too. So I kind of move in all three spheres. As a hobbyist beekeeper of over 30-something years, I've never fed a pollen sub to my colonies. Regardless of where I've lived, and regardless of what I've done, I've never fed pollen subs. Because as a hobbyist beekeeper, there's always been enough available in the environment for my colonies that I've never had to supplement what they get, and I also didn't have management strategies where I was trying to make them super strong for splitting more than I would have so that I could sell splits, etc. So I would argue if you're a hobbyist beekeeper and you're brand new, chances are you don't need to feed a pollen patty or pollen sub to your colonies at all. I will tell you commercial beekeepers think about it from a different perspective. They're oftentimes times trying to grow colonies during a time of year maybe there's not a lot of pollen or a lot of high-quality pollen available. So they're trying to grow a colony when the colony otherwise maybe wouldn't want to grow. And so they feel feeding pollen subs is very useful in those cases. So I would argue that pollen subs have very specific uses. Now, I'm going to chase a science rabbit for just a little bit. I'm reading the question that the listener had written, the listener said to me, "Hey, I recall you saying that the helpfulness of pollen patties is not even proven." So Amy, that's a good point to discuss. And we need to have an yet another episode on it. But in research that we've done here at the University of Florida, we have never been able to get any pollen patty that we've ever tested to have an overwhelmingly positive result for hives. I mean, the good news is that they've also not been overwhelmingly bad. We've never caused a problem with pollen patties. But we've never improved anything with pollen patties over doing nothing at all, which led to a series of research projects that we had with former master's student Emily Noordyke, and we've interviewed her on this podcast, you guys can check out that for more information. But that led to the production of a manuscript that Emily and I co-wrote and published. That's basically a review of all pollen patty research everywhere, at any time. We'll make sure to link that article in the show notes. But to make a long story short, through that literature review, we found incredibly conflicting information where pollen patties sometimes did something, where a lot of times did nothing, and maybe even sometimes hurt colonies. So I would argue for the average hobby, maybe even sideline beekeeper, you'll never have a

legitimate reason to feed pollen subs. Now, you may believe that you do because you want to grow colonies out of season etc, in that case, I said that's okay. But for the majority of hobbyists you won't need them. And I would argue, especially going into winter, you wouldn't need them because that's not a time of year that you're wanting to encourage them to produce bees or grow anyway. So really what you have to be more worried about from a nutritional standpoint going into winter is carbohydrate reserves. So then that leads to another question. Should I ever use pollen subs at all? And again, for most hobbyists, the answer will probably be no for a lot of sideliners, no, and then for commercial guys, a lot of them feel like they couldn't manage their colonies appropriately if they didn't use pollen subs. But I would say the jury is very much out on this topic, there's a lot that must be done to convince me that they're overwhelmingly beneficial in the majority of the cases. My guess is that they're beneficial, but in very specific scenarios, and in the complete absence of incoming pollen and things like that. But in your case, for purposes of this question, I would say no.

Amy 29:14

All right. So for the second question, I went to the Citrus County Beekeepers Association on Saturday and one of the questions we had was this individual she had gotten stung, and actually she gets stung quite often, but from dead bees. And so she was asking me, after worker dies, how long can her stingers stay active? And I'm like, "I'm not sure. Let's ask the question on the podcast. And we'll see if Jamie knows," so, what is that answer?

Jamie 33:52

Well, she needs to stop hanging out with dead bees, first of all. I've been stung by dead bees plenty, and plenty and plenty of times. But I never have a pain reaction to it longer than something like 30 minutes or an hour or so after the bee has died. So I tried to look up an official, formal, scientific-based answer to this question.

Amy 34:19

Because you didn't know either?

Jamie 34:20

Because I just didn't know, it's Stump the Chump, so I'm stumped. But I couldn't find any research on the actual length of time. But what really happens is the shaft of a bee can always stick you. We collect samples of bees from all over the place for preservation purposes and research that we do in our lab. And I remember when I would comb through samples of bees that have been preserved in alcohol or the refrigerator for some years, I'd get bees stuck in my fingers, from their stingers stuck in my fingers. So the bee would hang from my fingers, but I wouldn't feel anything. And that's because by that time, well before that time, the venom is either dried up or is degraded. So the shaft can almost always stick in you as long as the bee's got enough physical integrity, right? It hasn't decomposed too far. But I would say the venom is drying up or decomposing within minutes of the bee dying so that I've probably been stung by a bee at the 30-minute mark where it's given to me the reaction that I've had if it had been alive, but after about an hour, it's usually, in most circumstances, not able to sting you. Usually. Well, it can sting you in the sense that you can get stuck by the shaft, but it's not able to deliver potent venom that would cause some sort of reaction. But I'm curious if you're out there listening, if you've

been stung by a dead bee and felt the pain longer than an hour after the bee was dead, let us know in our social media because we can crowdsource this answer and figure out what actually is the answer.

Amy 35:49

Okay. So normally in a Q&A, we have three questions, and today everyone's going to get a bonus question because I received an email and it had two questions in it. And instead of just splitting it up, we've decided to just answer it on air today. So that's it. The last two questions that we have, I'll go through the third question first, but the individual did an inspection and they saw a capped queen cell, and then fast forward to a couple of weeks later, they did another inspection. That queen cell was torn down. And so the person is wondering, hopefully the queen got out or who knows what happens, and maybe they're on a mating flight. But how fast does a colony tear down a queen cell after the queen emerges?

Jamie 36:34

Okay, so there's a pretty quick and straightforward answer to this. When a colony swarms, and I will speak very much in generalities here, when a colony swarms, they're usually about a week to 10 days into producing queen cells. So they don't swarm and then have to start queen cells from scratch. So the reason I'm saying that is when a colony swarms, there are already capped cells that contain queens, that are just a few short days from emerging. So in theory, a colony can swarm, and within a couple of days, the new queen can have emerged and found all the other queen cells in that hive, bit holes through the side wall, and stung her developing sisters to death. So in theory, within just a few days, you can get torn down queen cells because you've got a virgin queen running around the nest. In practice, it's usually though more kind of in the 10 to 14 day range. When I've noticed one of my colonies has swarmed, the next week that I work them, I will usually anticipate a new virgin queen will be running in around in the nest. So somewhere in that seven to 10 days, she'll emerge and then start killing her competition. So in that 10 to 14 days, you'll notice torn down cells. But like I said, in theory, it can take just a few days, depending on the age of the queen cells remaining in the parent hive at the time, the swarm leaves. So what you're saying, listener, in this question is well within the territory of normal, I would argue it's usually kind of in the queen emerges in seven to 10 days tells, cells are torn down 10 to 14 days, so usually in the one to two week range. But it certainly can happen quicker, depending again on the age of the cells left behind when the colony swarms.

Amy 38:25

So the second question, the last question that we have for today is will a daughter colony and a mother colony mate with one another, or is that too close to inbreeding?

Jamie 38:36

Okay, so you've got this situation where you've got, let's just use two colonies, as the questioner mentioned, a mother and daughter colony. You've got two colonies in the same apiary. Alright. So that's all you've got, you've got no other bees, you've produced no other colonies, etc. Now, remember, virgin queens don't mate in hives. They mate flying through the air. And what they do is they go to areas where drones from the colonies around the area are congregating. We call these areas, conveniently enough, drone congregation areas. So imagine this scenario where you have two hives in your backyard. And the second hive is a split or a daughter from that first hive. So now, you're surrounded in

the environment, probably by a few feral colonies, but also maybe by a couple of other beekeepers. And all of those colonies, yours included, are contributing drones to these drone congregation areas. So when your daughter colony produces a new queen, and she goes out to mate, if there are very few colonies, in the environment, either from beekeepers or feral colonies, then there's a pretty good probability that that queen is going to mate with drones from her own colony, or drones from the other colony that you have in the apiary. So in that case, there's a reasonable probability that you'll get some inbreeding, right? If you've only got two colonies in your apiary, they're both related, and there are no other colonies in the flight path of these queens, then you're going to have inbreeding. But for most beekeepers, you'll have a reasonable density of feral or beekeeper-managed colonies, to where there's a reasonable probability that your queen is going to mate with drones that are not related to her. I mean, you could ask the same question if you just have one colony. What happens if you have one colony and the only drones available to her, the virgin queen, are her brothers? So that's why you really want to have multiple colonies. And also, if you live in an area where there are feral colonies and other beekeepers, all of this is advantageous to you because it helps you avoid inbreeding. But signs of inbreeding are pretty obvious when that new queen comes back and starts laying eggs. She will usually have a very spotty brood pattern. Worker bees can detect inbred eggs and they will abort them from the hive. So that's actually one of the causes of spotty brood patterns, not the sole cause, or even the most significant cause of it. But if your queens are heavily inbred, the worker bees are aborting those eggs pretty quickly. And in fact, your queen can be the best egg-laying queen on planet Earth. But if she's fully mated with exclusively her brothers or her relatives, the worker bees from her hive are taking out those eggs as fast as she's putting them in. So it doesn't always have to speak to queen quality. It's not like she's failing to lay eggs, it's just that there's a high probability, a high percentage of them that are inbred, so the workers are taking them out.

Amy 41:23

Alright, so those were our questions for today. Keep those questions coming. Jamie, I feel like in our inbox, out of every 10 emails we have, eight of them say something about the podcast or have a question about the podcast.

Jamie 41:38

Well, that's good. I'm grateful you guys are listening to our podcast and asking us questions. We couldn't do this, if it wasn't for you. So thank you so much. Thank you. Thank you. Thank you so much.

Serra Sowers 41:54

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.