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SPEAKERS

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

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 00:49

Hi, everyone. Welcome to this segment of Two Bees in a Podcast. In the past, we've had a lot of researchers, we've discussed a lot of publications, we've had a lot of scientific papers that we've had on our podcast as guests, but this year, we really want to focus on beekeepers and telling their story. Just where they are, the history of their beekeeping world, and just to ask them some questions. So I'm really excited for this segment. And today, we are joined by Kent Pegorsch who's with Dancing Bear Honey Main Street Marketplace in Waupaca, Wisconsin. Kent, thank you so much for joining us today on this episode.

Guest 01:27

Thanks for having me.

Amy 01:28

I know you were actually one of our guests when we were trying to promote the American Beekeeping Federation for 2022. And so you did discuss a little bit about your beekeeping operation. Again, this segment is really about you and your experience so can you tell us just a little bit more about your operation, how long you've been a beekeeper? Let's just start with that. Tell us your story.

Guest 01:54

Sure, I'd be happy to. Well, this will be my 46th season keeping bees, which is kind of exciting. I don't know where all the time went. I started back in the 1970s. A friend of mine in high school whose father had a large dairy farm also had about 35 colonies of bees. And he invited me into the bee yard and then subsequently, he was very happy to have me do a lot of the lifting and hard work of beekeeping. And I got to learn bees through this gentleman, through this mentor. So that's how I got into bees. I ramped up pretty quickly to a sideline operation. I started with just a couple of hives but by the time I graduated high school, I had 125 hives and then went up to about 300 hives. I was a sideline beekeeper for about 12 years. And then I got an opportunity for a career in the paper-converting machinery business and I downsized to about 10 to 25 colonies for about a decade. I was traveling a lot overseas and domestically and it was just too hard to manage a lot of hives while I was traveling. And then in 2003, I retired from that career to focus on our family's store Main Street Marketplace and then started ramping back up again in colonies to where I currently am at about 400.

Amy 03:11

Jamie, didn't you come from a dairy background as well?

Jamie 03:15

Yeah, my grandfather was a dairy farmer. He lives about eight miles from my parents' house. So when I started keeping bees I would keep bees on his dairy farm because it was a rural area and allowed me to keep bees in a place it wouldn't bother people so much. So yeah, kind of a similar background. But not Wisconsin, right? Wisconsin is famous for dairy farms. So I think it's probably a little bit different at the scale that my grandfather was in it. So, Kent, you were talking a bit about -- you used the word a few times, at least, the word sideliner. So I want to spend just a moment talking about this. For those of you who are listening from outside the US, we tend to, within the US, recognize three categories of beekeeper. That's hobbyist beekeeper, sideline beekeeper, and commercial beekeeper. There are lots of definitions for these. I'll give you an example, Kent, before I ask my question to you. Here in Florida, we have a Florida Department of Agriculture and consumer services. They consider one to 40 colonies mean you're a hobbyist, 41 to 99 colonies a sideliner and 100 plus colonies to be a commercial beekeeper. I've always used the definition that if your primary source of income is through bees, you're a commercial beekeeper. If a secondary source of income is through bees or beekeeping, then you're a sideline beekeeper and that means that you've got a main job that pays most of the bills but you've got this beekeeping gig on the side that supplements your income significantly. You're a sideline beekeeper. And then third, if you just got a few colonies and it's not really there to make money, but more there to have fun, it's more of a hobbyist. So I want to hear what you believe to be a sideline or as you identify yourself as a sideliner beekeepers. So talk a little bit about what that means to you, and how you eventually leveled up to get there in the first place.

Guest 05:07

Sure, I tend to agree with your definition, Jamie, more so than just basing it purely on numbers, because I think that I have a friend who runs 40 colonies, and he is definitely a hobbyist. He doesn't care if he makes money. It's purely for the enjoyment of bees, and there are probably beekeepers who run a lot more just purely for the enjoyment of bees and the money is not important. They may make a profit, they may always lose money if they're trying different types of beekeeping. My definition kind of revolves around whether you're making money off of bees, you're a sideline or commercial. And if it's a

full-time job, if it's your main focus in your career, then I would say you're a commercial. So you could be a commercial beekeeper, I guess, at three or 400 colonies, if you're doing all aspects, say, for example, raising queens, producing honey, selling honey at foreign markets, and then involved in pollination. Also, if 300 colonies are taking up 100% of your time, and that's your main job, you'd in my mind, I guess be a commercial beekeeper. But I think if you have other ventures in life, like we have a retail store, which takes up a lot of my time also at certain times of the year, that defines me as a sideline beekeeper. And I guess, back when I started in beekeeping, in my mind, 500 colonies was the level someone became a certified, so to speak, commercial beekeeper. Now, that number up here in Wisconsin and in the northern states, I think is a little bit higher, because I know people who are running sideline operations up in 800 colony range. But I always thought like 500 to 1000 was the commercial level, anything below that was sideliner and that's why I've kind of always felt that was a sideliner.

Amy 06:49

Yeah, so I know that you were mentioning how you went from a couple hundred to a couple more 100, down to less than a couple hundred, so a lot of the beekeepers that we work with, they're looking to either level up, they're trying to get to the next level, or they're trying to figure out, do I just keep it as a hobby and maybe I'll just do it for fun? I guess, for advice for some beekeepers, what would you have that may have been things you didn't consider when you were transitioning from one thing to another, making money off bees versus not making money off of bees? And so what are some things that you have advice for beekeepers that you wish you would have known?

Guest 07:32

Well, my perspective on my beekeeping business has always been that it is a business. So when I started in this venture back when I was just out of high school, I really focused on the business side of it. I actually went to school, got a degree in marketing, then went back and got a degree in business administration. If I were to do that over again, I would have definitely tried to get a job working with a commercial beekeeper to get an idea of what goes on in the bigger picture in bigger operations. I think it would have opened my world up a little bit more. Back then, beekeeping was a little bit simpler because we didn't have mites to worry about but if I went to work for a commercial beekeeper, I think that would have been a very important advantage that I could have had. We had a very active group of sideline beekeepers in this part of Wisconsin when I started so it was nice to get together over coffee several times a week and talk about what we're doing. But again, we're all in this box of being a newer sideline beekeeper. And if I could have worked with a commercial beekeeper, it would have definitely been beneficial. That's probably the most important thing I would have done differently if I could go back and choose a different path.

Jamie 08:44

Kent, I find that amazing. One of the things that I hear folks talk about a lot from the beekeeping perspective is a lot of people kind of do it the other way around. They dive straight into bees but really have no formal training in business or marketing or management. And a lot of times beekeeping will point that out as a deficiency. You're almost saying it the other way around. You were in bees a little bit, but you got degrees in what I thought would be very useful to beekeeping but you're now saying that

you wish you spent a little bit more time with bees. I guess the correct answer is to get experience with both and then you can wrap it all up in the perfect scenario, right?

Guest 09:20

Yeah. So this is a little ironic because I know a lot of beekeepers who are very poor business people, but very good beekeepers. And the idea, I think, of going into beekeeping as a business is trying to get a balance between business and beekeeping. And if you don't have a business interest or business skills, then find someone in your family or a professional to do that part of it for you and to give you advice on that because I think one of the most important things with sideline beekeeping, because it is kind of a transition from someone who's doing it as a hobbyist for enjoyment, is that they forget that one of the most important things in a business is the revenue stream. And you have to think about how you're going to create that revenue stream in beekeeping. You can do that by producing honey, you can do by pollination, and you can do it in different ways, you can sell the honey wholesale, you can go to farmers' markets and sell it for a higher retail price. But you have to be thinking about the revenue stream to support your beekeeping addiction.

Jamie 10:16

I really think that's a great intro to the question that I really want to ask you about this. Okay, so when I tend to think about beekeeping as a business, I imagine a man or a woman out there working bees all day long, that's their job. Beekeeping is their business. But in reality, that's not true. You've got to handle payroll, you've got to handle employees, you've got to handle purchasing equipment and supplies for your operation. So could you break down for us for our listeners how much time you feel you spend in various aspects of your business? And then,, I'm going to throw a second question at you as well. At what point in the growth of a business do you consider adding another person to your business, especially from kind of the sideline perspective? So first question, first, could you break down for us how you allocate your time in a typical year, you know, 10% on marketing, 15% on sales, whatever it is, and then talk a little bit about the transition from you as a sole worker in the business to adding another worker to keep it going?

Guest 11:25

Sure, well, it really varies on the time of year. And in my operation, May is extremely busy because we're doing splits and we're doing swarm control. And August is extremely busy because we're harvesting honey and treating for mites to get healthy bees by September 1. And in September, we're feeding bees. So those three months, May, August, and September are 100%, and sometimes seven days a week all out, "I'm bees," my focus is strictly on bees. So the bookkeeping and the marketing kind of fall in on the off months. This time of year, of course, I'm preparing my taxes and spending quite a bit of time on bookkeeping. But because I've kept good records consistently through the year, it's really not that hard to sum everything up at the end of the year. And that's a big key is trying to keep good organization of your bookkeeping and your costs and your revenue throughout the year. So it's not a big problem when it comes to tax season. And then as far as marketing, of course, I'm always thinking about marketing. And this retail store we have is a big benefit to us, to me, and my operation. Because we have a staff there, we have a large historic building in downtown Waupaca that has four storefronts that we've renovated over the last 35 years. And one storefront is dedicated to honey and honey products. And we have a staff there already, so I don't need to worry about being there at any particular

time. Although, I do enjoy being there when I have time, when it's a slower time of the year, I enjoy being there and talking with my customers. But in May and August, September, I spent zero time on marketing, it's all in on the bees. So I think that you need to be aware of when you need to be focusing on the bees. And if you need to be selling honey at foreign markets in August and September, but need 100% of the time for your bees, you might have a conflict or you might have too many colonies. And I think that also kind of leads into the next part of your question, maybe, when do you need to look at hiring help? And I'm very fortunate because I have a son who helps me out in the really busy times. And he's pretty well versed in the bee yard So we go into the bee yards, he can hit the ground running, and he just does what he needs to do. He can make splits, he can do whatever he needs to do, and I can do what I need to do. So without that kind of help, I would think, probably, 200 colonies would be the number I would feel comfortable with managing because I have a mantra, I want to do it right and I really want to focus on the colonies and keep them healthy. And if I had more than 200 and I was all alone, I think I'd have a difficult time keeping those colonies healthy as the season progresses and things get really busy in August and September.

Amy 14:02

Yeah, that was actually one of the questions that I had for you was how many colonies -- and I know this changes, it depends on the beekeeper and who you ask -- but how many colonies do you think a person can manage on their own? And so from what you said 200 is the number for you.

Guest 14:19

Yeah, I guess 200 number for me, but there may be someone who is capable of running more and it kind of depends on your philosophy. Some people run a lot more colonies and they make up further deficiencies in the ability to split back for losses after almonds. I like to really focus on the health of my colonies.

Jamie 14:42

So, Kent, I really find that comment fascinating because I've been around commercial beekeepers now for quite a while, and what I've seen is I've seen commercial beekeepers max out as an individual, like this is the thing that they do all the time, they will max out, usually, at 700 colonies as my rule of thumb. One person can manage 700 colonies. I have seen an individual manage up to 1200 colonies. But that's a lot for one person. Somewhere in that range, I've kind of always told folks, you need to add another employee, or you're going to have to add another employee. I really think we're going to have to bring you back in the future to talk about this really neat concept that you're talking about, where you say, "I'm focusing myself on 200, if I bring in another person, I'll have three to 400 because I'm focused on the health and well-being and productivity of those colonies." My guess is, Amy, that we could talk to Kent a lot about the strategies, Kent, that you use to be able to accomplish that with that number of colonies. I also think it's fascinating that that number of colonies provides you the ability to keep a store stock and all this stuff. So there are all these kinds of comments, going through my head, these questions going through my head that I'd love to have you back on in the future and talk about as a follow-up.

Guest 16:03

Yeah, I think there are a lot of philosophies in beekeeping and sometimes, beekeepers get stuck within one mode of operation. They don't think about how they can either make their life more enjoyable or make their business profitable by looking outside that world.

Jamie 16:18

Kent, I think that that's such a perfect comment because oftentimes, I will see commercial beekeepers, big huge operations, selling their honey by the barrel, and I don't know what they're getting per pound a day, maybe \$1 and a half to \$3 a pound. Probably a big range there. But, if they retailed it directly, they could get \$10, \$15, \$20 a pound. They'll say, "I don't have the time," and I was like, "Well, if you just started doing that you could afford one or two people's salaries to do that. And then on top of that, you still make a little income." But just like what you're saying there, a lot of times maybe the marketing or the extra work or the novel ways that they can make money doing the same thing, maybe it's not always apparent. I really liked that comment and that kind of foresight that you're saying there that there are other ways to do it. And I just think that that honey example is just one of those things that always pops in my mind. Like, why are you selling 100 barrels wholesale? Just hire someone to bottle that stuff and sell it directly. So anyway, that's just my thought.

Guest 17:21

Yeah, and I think that, from a sideline perspective, if you're building a sideline business and planning on selling your honey at, let's say, \$2.50 a pound in barrels, and if you're not in a very consistent area where you get a consistently nice crop of honey, I think it's challenging to get enough revenue at \$2.50 a pound, year after year after year and have enough revenue stream. And obviously, then you look towards pollination and other things. But it is something you need to look at when you're setting up your business model.

Amy 17:57

So, Kent, you had mentioned the retail store, the honey and the honey products, and also the other hive products that you sell at the retail store. But can you go a little bit into what else you do as far as generating revenue?

Guest 18:13

Let me think about that. Because let's see, I'm thinking out loud here for a second. We have the store and the revenue from pollination. So yeah, I maximize my revenue by selling our honey directly through the store. Of course, there is some additional cost in having that space allocated to honey in our store. But beyond the retail sales of honey, I'm also sending my bees to California for the past about five years. And that's been working out really well because it's made my business sustainable. Prior to sending them to California and trying to winter them in Wisconsin, I was having higher losses just because you have to go through the winter. But then, also, the bees did not start to build up until April and May. By sending my bees to pollination in California to almonds, my bees come back, they already have a jump on spring, they're already built up in size so I can begin splitting as soon as I have queens available in Wisconsin. So besides the revenue I'm getting from the almonds, I'm getting the increased size of colonies I'm getting back, which is actually a revenue stream on its own. So those are areas that have really helped make my business profitable and sustainable.

Amy 19:27

Yeah, I think that's great. I actually went to go visit a commercial beekeeper a couple of weeks ago to help load up for almonds. When I had posted the picture on social media, people said, "Well, isn't that really bad and unhealthy for the bees?" And I said, "Well, actually, the beekeepers expect the bees to be larger when they come back." And so that was something that I was surprised to hear and I was like, "That's cool. That's great."

Guest 19:51

Yes, let me think for a second. Yeah, I've really focused on sending healthy bees to California so all of my focus is on my bees in August and September to get good, healthy winter bees, so when they go to California they look as good as they can possibly look. And that's been very successful for me because I've been getting very healthy bees back from California. I was out in California looking at my bees in January. And I just got the numbers the other day and 96% of the bees that I sent to California went into almonds for pollination. And if they would have been in Wisconsin I would have probably had between 10 and 20% losses already.

Amy 20:31

Yeah, so earlier, you had mentioned losses, and you also had mentioned Varroa and how that really wasn't something that beekeepers had to worry about when you first started beekeeping. And so can you just talk about what you've seen as some of the largest challenges or maybe just a little bit of the history of the beekeeping world that you've seen from when you first started to today?

Guest 20:54

When I started beekeeping back in the 70s, it was definitely a different world in that we had nice honey crops. We could expect 100 to 150 pounds on average per hive every year. The alfalfa crops up here would bloom for a week before they'd cut them, we had sweet clover crops. It was like heaven for a beekeeper. And then of course, in the 80s, the mite came in, and that changed everything. And it took us a while to learn how to deal with the mite. And right now, that's probably what I lay awake most at night thinking about, the Varroa mite. Am I doing enough? Are my bees healthy? So I'm constantly doing Varroa counts on my colonies every month and after I do treatments, I do counts also and had some surprises after treatments where I found they did not work. So just assuming they don't work, or just assuming they work can be a mistake and can cause your hives to crash. And I've also, in the past, worked with the Bee Informed Partnership's tech teams to have them come into my operation to give me outside eyes on my operation. Because again, when you're working, you're so tied up in your own little world, it's very helpful to have someone come in and say, "Hey, have you thought about this?" or, "Maybe you should be doing it this way." So that's been very, very instrumental, I think, in my success. This last year, I worked with a sentinel apiary program. And I used the numbers that I got from them for my mite counts to verify numbers I was getting to make sure that my numbers were consistent with what they were getting. And they were, but it gave me extra peace of mind. And then I also got Nosema spore counts, which is another thing we have to worry about now more so in the summertime. I'm not quite sure what to do with those counts yet, because I'm not sure if Nosema is a cause of a problem or a result of something. I'm still working through that in my mind. But all these challenges about keeping colonies healthy are so much more forefront now than they were back when I started in the 1970s. And it is the new world that we operate in. And fortunately, I think that honey prices going up a little bit, the

ability to retail honey at a higher price, and pollination revenue have really kind of thrown a lifeline to our industry to give us some of the cash flow into the industry to support these extra challenges.

Jamie 23:12

Kent, there's so many nuggets of amazingness in the stuff that you just said. I mean, I love the fact that you said you're sampling for Varroa. That's something we try to push. It's great to hear that you do it and believe in it. To me, equally great, or maybe greater still, you said that after you treat you sample for Varroa because you cannot just assume that treatments work. We see that here with our data, we try to preach that to beekeepers. And it's really neat that you've got eyes on the ground that you're able to see that very same thing and that you follow through with that. And then I love the idea, too, that you've got a second pair of eyes looking at your colonies, you're using the Bee Informed Partnership to do that. But it's really neat at the level of attention and care that you're putting into the health and well-being of your colonies. And it sounds like it's paying dividends. And so I hate to wrap it up but I do want to ask you kind of as a grand finale question, what are some words of wisdom that you would impart on folks who are wanting to become sideline beekeepers, number one, or number two, folks who are already into beekeeping and just need a little bit of advice from you who's got these years and experience being successful?

Guest 24:29

To be successful in beekeeping, I think beekeepers need to be proactive at all times. They always need to be thinking about what are the bees going to need next week, next month, this spring, and next fall, constantly thinking ahead and not being reactive to problems. Now, of course, we're all thrown challenges and we have to react to them. But that should be more unusual than the usual mode of operation. So to be proactive. I also think joining the local county organization, state organizations, and the American Beekeeping Federation is key to getting a bigger picture of what's happening out there. I've learned so much by going to the state conventions and the American Beekeeping Federation conferences. I learned in presentations, I learned in the hallways, and it also gives a beekeeper a chance to give back to the community to mentor their beekeepers and to talk to their beekeepers and maybe help them a little bit. So I think being involved is a great way to make friends and really bring beekeeping to its fullest enjoyment.

Amy 25:36

Well, Kent, I always tell people who are not beekeepers that beekeepers are really, really superheroes. I mean, you guys can look into the future and you do so much for our ag industry and you do so much just for our community. So thank you so much for all of your work and all of your help and thank you so much for being on our podcast today.

Guest 25:56

Thank you so much for having me and I hope this helps some people.

Amy 25:59

Alright, everyone, that was Kent Pegorsch of Dancing Bear Honey Main Street Marketplace in Waupaca, Wisconsin. Thank you so much for joining us today on Two Bees in a Podcast.

Stump The Chump 26:45

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

Amy 26:55

Welcome back to the question and answer time. So Jamie, the first question that I have for you is kind of a two-part question. It's about pollen trapping. So the first question is, how does a beekeeper collect pollen? And then how do they keep it? So what do they do with the pollen after they collect it? The second part of the question is, can that pollen be fed back to the bees?

Jamie 27:18

Oh, good question. So collecting pollen is actually relatively straightforward. If you look in your equipment supply catalogs, there are lots and lots of different pollen traps. In fact, every company usually sells two or three different styles. Not all pollen traps are created equal. But I've really never seen an efficacy test of pollen traps to show, these are better than the other. So you might ask other beekeepers in your area, "Hey, have you used pollen traps? If so, which do you prefer?" All pollen traps are based on the simple premise that they are put onto a hive, so that a bee, when it enters the hive, does not enter its normal entrance, but instead walks through a modified interest entrance where, as they walk through it, it's a space that's just big enough for the bees to take their body through, but too small for them to take their body and their legs with pollen on them through. So as they go through those holes, for example, it knocks the pollen off of their hind legs. And that pollen falls into some sort of collecting tray. Some pollen traps can be left on hives year-round and opened and closed. I kind of like those because that means you can put them on a hive and you can open them when you're not using them and close them when you want them to be engaged. Other pollen traps are only engaged. In other words, when you put it on the hive, it's engaged the whole time. So when you don't want to collect pollen, you physically have to go into that hive to remove the trap. So there's a lot of different styles. I'm not going to talk about all the different styles, but they're all based on the premise that it knocks pollen off and back legs of a bee and into a tray. So what then should you do with it? Well, it all depends on what you're going to do with it in the first place. It sounds like this questioner simply wants to have some pollen around that they can feed back to their bees. Some folks harvest pollen to sell for human consumption. But I'm going to go under the first premise that they're wanting to collect it and feed it back to their bees. If that's the case, you're going to want to make sure that there are no large chunks of debris in the pollen, maybe wax, maybe small hive beetles, bee carcasses, or something, then you're going to want to store that in the freezer. You don't want to store it at room temperature because it might mold if there are beetles in there, small hive beetles in there, their larvae might come out of their eggs and cause problems and so I recommend freezing it. You can dry it but drying is usually something that you do to preserve it, say, for human consumption downstream. But I would just recommend freezing. If you ended up drying it you would just put it at low heat in an oven for a very long period of time until the water evaporates off but you don't have to worry about all that if you just throw it in the freezer. Now what do you do with it once you have it? Well, you would collect that out of the freezer, let it thaw out, and then you would mix it into a pollen patty type delivery system for the bees. I wouldn't put it out in a tray and expect bees to forage and collect it. You're going to need to mix it with sugar syrup as if you were making a pollen patty and feed it directly back to bees as if you were feeding a pollen patty.

Amy 30:23

So, Jamie, I was just wondering, why would you not just let the bees take it back into their colony so they can feed it back to their bees?

Jamie 30:31

Yeah, so that's an interesting question too. In my particular case, this is just a Jamie-ism, I have never trapped pollen for the purposes of feeding it back to my own bees. I just want my bees' natural biological clock to be timed with that of the local environment. So if there's pollen coming in, I want my colonies to grow. If there's no pollen coming in, I don't. So a lot of beekeepers will feed pollen substitutes, in general, because they're trying to get colonies to grow when there's none available. So you could say, maybe there are times of the year when there's a lot of incoming pollen that a colony might grow on but you don't necessarily need that colony to grow. So you are harvesting that extra pollen for use later when you're wanting to make them grow when they otherwise wouldn't. So let me give you a scenario. Let's say, spring is over, you've produced your main honey flow, that's done, it's great, and now your colonies are as strong as they're going to be all year. But you're not going to get another major nectar flow. So I'm giving a hypothetical here, you live in an area, you're not going to get a major nectar flow, but you will get a huge pollen flow, right after the honey flow where your colonies might still try to grow but you don't really need them to. There's nothing for the rest of the year for them to do. So you might say to yourself, "Well, I'm going to harvest some pollen, because if my honey flow starts April 15, maybe I'll start feeding pollen subs and mixing in some pollen into those subs, maybe, late February, early March to get colonies to start to grow before pollen is naturally available." So I've never done that. But it's certainly something that you see a lot of commercial beekeepers do when they're trying to get colonies to grow outside of the growing season. And so one way to do that is to harvest pollen when you determine as a beekeeper that the bees don't otherwise need it. And again, you're not harvesting it every day all day long. Usually, these pollen traps will go on for a couple of days, and then you give the colony a week off. You don't want to completely cut off the pollen flow, which, incidentally, is why I kind of like those pollen traps, by the way, that you can open and close without taking off the hive. But it's just one of those things you can do. It's just an extra thing you can do. Many beekeepers I know who trap pollen actually do it to sell to people who want to consume pollen. And that's a whole different ballgame. But nevertheless, even in that case, they consider it an income. So it's as important to them to collect pollen as it would be to collect honey. So maybe they're less worried about honey. They're simply collecting pollen when there's a surplus of it.

Amy 33:12

Well, I feel like the chump today because I thought you were going to say you know what, Amy? You're right. Just let them feed it back to the bees and don't collect the pollen but instead, you had another answer.

Jamie 33:22

Well, yeah, I always have an answer for everything. It's often wrong. But the short story is I like my bees to be timed to the local environment because I'm not making more colonies etc. But a lot of people who are trying to manipulate their colonies to produce more bees out of season, all that stuff, they feel it necessary to feed pollen subs, and collecting and using their own bee collecting pollen is part of their protein management in other times of the year.

Amy 33:48

Okay, so for the second question, we had someone inquiring about American foulbrood. So they don't have American foulbrood, but they were just wondering, typically, and I don't know if this is even typically or always, we recommend burning the hive, the colony, everything associated with it. But what about the equipment? So, we also say that you should sanitize your hive tools or you shouldn't use your hive tools again, and it can spread very quickly. But what about your jacket that you're wearing, your jeans, your shoes? Can you just wash them? Or does that also need to go to the burn pile?

Jamie 34:23

Okay, well, in the strictest sense of the answer, since American foulbrood is a bacterium and since it's a spore-forming one that it gets absolutely everywhere. So if you work a colony that has American foulbrood, you could see it with your eyes, right? It's already on your hands or your gloves or your hive tool and your smoker and your suit and your veil that you just touched and the shoes and everything. It's there. So in the strictest sense of the answer, it should just all be destroyed and thrown away. However, most folks don't do that. They will destroy the hive, but the hive tool they'll disinfect with Clorox bleach as an example, or they might put it in a fire to disinfect it. Their gloves, they might also bleach. I will tell you, if you use bee gloves and you work a colony with American foulbrood, that's the one item of clothing I would absolutely consider just throwing away. To me, it's going to be very hard to sterilize gloves. But your bee suit can go through a washer and then into that washer, it's natural for people to add bleach to their laundry anyway, especially their whites. Bee suits are white so you could add bleach in there that should help against American foulbrood, but I'll tell you, if you want to be absolutely as safe as possible, just everything that you were wearing at the time just becomes fire fodder or you throw it away. But you can, in theory, bleach your clothes, do the laundry, and things like that. You can clean your hive tool, but you got to think about other things like your smoker. Your smoker bellow is now infected and that's where you put your gloves to squeeze and puff smoke. You can buy more smoker bellows. And it should be relatively easy to disinfect the metal shaft of the smoker. You can rub it down with a bleach wipe or something like that. But yeah, it's better safe than sorry with American foulbrood, unfortunately, so it would demand probably, at least, doing away with your gloves and washing your outfit and your veil. Shoes are an interesting question. Shoes are expensive.

Amy 36:24

I was about to say, it depends on what shoes you're wearing.

Jamie 36:27

You can't really bleach them. If you're wearing an old pair of shoes to the apiary, you might just do away with those too. But if it's some fancy pair of boots that you don't want to bleach, then you might just never wear them into the apiary again. They just might not become bee shoes anymore.

Amy 36:42

Alright, so for the third question, we have this person asking how do you find a drone congregation area?

Jamie 36:48

Yes. I'm only able to answer this question because I had a master's student who had to find drone congregation areas as part of her research. So let me tell you what they are, and then I'll tell you how one finds them. When drones are sexually mature, they will fly, usually, in the afternoon over a period of about three hours to areas where they congregate waiting for virgin queens to arrive. So we call these areas drone congregation areas. So they're flying out daily to these areas and hoping that a virgin queen goes through and hoping that if she goes through, they will be the one out of the 15,000 drones at the DCA that will be able to mate with her. And in a DCA's case, drones tend to form these at the edges of topographical changes. So if you're in a field, it might be the edge of the field where the drones meet trees. Some colleagues of mine from Germany where there's a lot of elevation had written it's where you get these kinds of depletions of the horizon. Imagine you're standing in a valley and you've got a row of mountains on one side and a row of mountains on the other and you're looking down the valley, the mountains kind of come together in the shape of the letter V, often in the distance. Well, it would be that direction, for example, that drones might head. We don't have mountains in Florida. So for us, it would just be topographical changes, the edge of a forest or something like that. Alright. And these drone congregations tend to be stable. In other words, what they use this year, they're likely to use next year, and so forth. Now, the problem is that these things occur 30 feet or more above your head. And so most of us will never see them unless you know where to look for one and how to look for one. So your drone congregation areas are usually forming from about half a kilometer to about a kilometer or so away from the hive. That's 500 meters, that's roughly, if you're using the US system, 1500 or so feet, and they're usually forming about that distance around your colonies. They're usually at the edges of fields. But in order to find them, you've got to get the drones to congregate around something that you are responsible for moving because, contrary to popular myth, these drones aren't congregating in a mass unless a queen moves through the area. So this cloud of drones in the absence of a queen may be quite huge. And you might not even look up and see a lot of drones flying around but you need them to coalesce around something so that you can positively identify the DCA. And so the way scientists have done that is they will take weather balloons to which they tie a long piece of string. Then, just below the weather balloon, on the string, they will suspend an upside-down basket made of mesh. You can purchase cigarette filters, you know the cottony part of a cigarette. You can purchase those away from the cigarette. You can buy a bag of them. It's just basically a shaft of fiber. They will paint those cigarette filters black, and those who are looking for DCAs will put on a queen pheromone that you can buy. So they'll drop a little bit of that on that black cigarette filter. You tie the cigarette filters to the lower lip of the basket. And basically, the look of that black cigarette filter is supposed to be a visual orientation of a queen. The drones flying around visually think it's a queen. This pheromone that you put on there is what pulls the drones to that basket in the first place. So when a queen goes through, they don't identify her by sight first, they identify her by smell first. So they will follow the queen going through that DCA, and as they follow that pheromonal trail, the closer they get to the queen, the more they switch to using their eyes to see her. So when you put with that weather balloon that basket 30, 40, 50 feet in the air, and you walk around the edges of fields, when you encounter a DCA, all of a sudden you're going to get a few drones, and then more drones, and then more drones. And when you are in the middle of the DCA, you may get hundreds or thousands of drones being attracted to the pheromone of those false queens. And then when they get close to that basket, they are attracted by the look of what they think is a queen, which are these black cigarette filters. And you'll just get this huge cloud of drones following those cigarette filters that are suspended in

the air. And that's how scientists find DCAs. The reason that they will put these cigarette filters on inverted baskets is that once the drones kind of fly towards them, they will fly into that basket and self-collect at the top of the basket. And when drones panic, they don't come down out of the basket and fly away, they just tend to stay up in the basket. So you can pull that weather balloon down with your string and actually sample the drones that have self-collected in the basket. But that's how they find it. They use pheromones on visual dummies that they suspend in the air at about the right height. And then they walk in areas that have a reasonable probability of being a DCA. My student, my former student was good enough at it that she could use Google Maps and look around an apiary and predict where DCAs were likely to form based on the distance from the apiary and being the edges of fields. And she was able to set up these DCA weather balloons and walk around and, with pretty good accuracy, predict and find DCAs where she thought that they might be.

Amy 42:42

That's pretty cool. It sounds like a lot of work.

Jamie 42:45

It is.

Amy 42:45

Just for a DCA.

Jamie 42:48

I'll tell you, just as a quick aside, Amy, I was out in the field with her one time.

Amy 42:52

This is my favorite story by the way.

Jamie 42:55

We were in the field together, and she was going to monitor one DCA and I was going to monitor another for her. And she left me in that field and drove away with the truck. And it's me in a field with a weather balloon and this massive thunderstorm rolls in with lightning everywhere. And there's one tree and I'm like, "Oh my gosh, I don't even remember what I'm supposed to do. Should I go under the tree or stay out in the middle of the field?" So I went under the tree and just sat on the cooler thinking, "This is how I'm going to die." And I'll look over to my right, and there's a dead fried raccoon carcass right beside me. All I can think is that this is the last organism that tried to take shelter under this tree from a lightning storm.

Amy 43:42

So funny.

Jamie 43:42

So all I can think is I got this weather balloon, I'm in the middle of field, there's this tree, there's this dead raccoon, this is it. This is it. I should phone home and tell my wife goodbye. But I survived. And my student came back and got me and that's it. That's the story.

Amy 43:56

There you go. That's research. That's research for everybody. That's really funny. We need to do like, I don't know, we need to do an episode where we just talk about all the really funny things that have happened to us in an apiary.

Jamie 44:11

I know. What bees have done.

Amy 44:12

I know. Alright, well, so those are all our questions and answers for today. Keep the questions coming. Message us on Facebook, Instagram, or Twitter, or send us an email.

Serra Sowers 44:24

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.