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SPEAKERS

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

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 00:51

Hi, everyone. Welcome to this segment of Two Bees in a Podcast. Today, we have Dr. Matthieu Guichard, a research scientist with Agroscope Swiss Bee Research Center and also with Apiservice, which is their extension realm in Bern, Switzerland. And today, we are going to be discussing the Swiss beekeeping concept. So we're going to be talking about beekeeping in Switzerland, and I'm really excited to hear about beekeeping in Switzerland. And hopefully, one day, we'll be able to come and visit. So thank you so much, Dr. Matthieu, for joining us today.

Guest 01:27

Yeah, hi, Amy. Hi, Jamie. Thanks for inviting me. I hope to be able to provide some interesting details about how we keep bees on this side of the Atlantic.

Serra Sowers 01:37

Hi, I'm Serra Sowers, and you might have heard my voice before in our episode sign-off. I'm the podcast coordinator. And in this episode, I'm adding in some clarification for parts that were a little hard to hear and things I found interesting. Hope you enjoy.

Amy 01:51

I'm sure it's very different than how we keep bees over this way. Can you tell us a little bit about yourself and your beekeeping experience?

Guest 02:00

Yeah, sure. So my first experience with bees started back in 2007 when my father took care of honey bees back home and I was immediately interested. And later things escalated a little bit. So it was one, then two and four. Now, I have about 50 colonies, which I try to manage. So I'm, myself, an agronomist. So I studied animal husbandry at a French university called AgroParisTech. And from then, I always worked with bees. So I've made several experiences in internships and so on for breeding, pronation, the impact of pesticides, and so on. And later, I did a PhD at the University of Bern, which I completed in 2021. And I've been mainly working on selection of honey bees' resistance against Varroa destructor. And I'm currently working as a postdoc at the Swiss Bee Research Center Agroscope, which is based in Bern in Switzerland.

Jamie 03:04

So I've had the great fortune to be able to visit some years ago in Bern, Peter Neumann and Vincent Dietemann are colleagues of mine. So it's really neat to see you continuing on working with beekeepers. For you listeners out there, I know I'm a bit hoarse today and just letting you know, that's why I sound the way it is. But we'll push through. So when I was in Switzerland, one of the things that I thought about is how difficult it must be to work in multiple languages, right? You're speaking to us here in English, but in Switzerland, they also speak German and French, principally. And so you work with beekeepers across all those languages. And so could you tell us a little bit about beekeeping in Switzerland? How many beekeepers are there? Where are they in the country? How many colonies are managed there? And a little bit about working with beekeepers from all of those different cultures represented in Switzerland?

Guest 03:56

Yeah, for sure. I think the context is very different if we compare to the US. So just to make a little summary about Switzerland, it's a very small country. It's less than 1/3 of the surface of Florida. And indeed, we have four official languages, which are French, German, Italian, and also the fourth one, which is a Romansh, which is only spoken in some valleys in the Alps. So 8.6 million people, which are split between 26 cantons. So one canton is about, as the same competence as a state in the US. So it's like many states. In these different states, we have about 18,000 beekeepers, which host 160,000 colonies, which means the average number of colonies per beekeeper is about 10 colonies.

Serra Sowers 04:44

Wow. It's hard to imagine, but in an area that is just 1/3 the size of Florida, Switzerland hosts 160,000 colonies that are mainly kept by hobby beekeepers.

Guest 04:56

The colony density is quite high. It is up to 10 colonies per square kilometer in some regions. The average honey production is about 20 kilograms per colony per year. And yeah, of course, all these beekeepers are hobbyists, with a few exceptions, and grouped in local beekeeping associations. These associations depends on the language. So, if you are French-speaking, you will attend a French-speaking organization, central German or Italian-speaking regions, but we are governed by Apisuisse, which is the umbrella organization, which is like a board of beekeeping in Switzerland. And then we

have several services. So, we have Apiservice, which is Extension Service, it belongs to Apisuisse. So, it brings conferences to beekeepers, it publishes articles and beekeeping journals, it publishes some memoirs with information, for instance, how to make a speech, how to treat against Varroa, and so on. It provides beekeeping concepts, and always is provided in three languages, French, German, and Italian. So we have to translate everything that we do. For this, we also cooperate tightly with applied research, which is Agroscope, the Swiss Bee Research Center, and also fundamental research, which is performed at a university.

Amy 06:16

Yeah, so that was actually one of my next questions for you. What are the institutions that support beekeepers in Switzerland? So you just kind of mentioned extension, and a little bit about the applied research. Can you tell us a little bit more about the fundamental research, applied research and some of the extension programs out there?

Guest 06:36

Yeah, so the aim for fundamental research is really to work on biological mechanisms to understand, for instance, the interaction between pests, pathogens, and the honey bee. This is done in collaboration with other research networks worldwide, for instance, in the frame of the COLOSS network. So there are a lot of contacts at the European and international level. So this is done at the University of Bern. So the University of Bern also has some contacts with beekeepers. But the more practically oriented research is done by Agroscope. So it's more about, for instance, designing new formic acid dispensers or evaluating new treatment methods, these types of activities. So this is done by this research center. And that service is really, really dedicated to helping beekeepers have a better beekeeping practice to keep and rear honey bees in a good health state. And so yeah, it's more in the field going to the local beekeepers' associations. So, you have beekeepers associations in every canton. There are several sections of these associations, and people from Apiservice can go there and present conferences, depending on the theme, which has been chosen by the local beekeepers. So this is really a field dissemination of knowledge to beekeepers, in the form of articles, which are easy to understand, in form of fact sheets, and so on. So this is how it works. And all these factors coordinate, the strategy is defined between these different institutions and the aim is to have everybody on board to follow these recommendations.

Jamie 08:26

So you actually send us a lot of resources that you guys use in Switzerland for for beekeepers, and one of those being the Swiss beekeeping concept. I'm going to ask you to tell us a little bit about what that is, but before I do, what I want to tell our listeners is that we're going to make sure and link in the show notes to these resources that he was able to share with us, so that you can kind of see the types of things that beekeepers are using. So again, could you tell us a little bit about the Swiss beekeeping concept? What is this and how does it work?

Guest 08:54

Yeah, so, the idea was to provide a framework on how to keep vital honey bee colonies with minimal mortality in order to safeguard production of honey bee products and also to provide pollination to agriculture. So, this is based on the Varroa concept, which is recommended by Apiservice. There are

three steps in this concept. So the first step is to limit mite development in spring, for instance, by removing grown broods by creating young colonies. So, this type of biotechnical measure. There is also a very important step which is evaluating mites infestation, so for instance, in summer, spring, autumn, winter, and later to treat based on organic acids. So the protocol in Switzerland for treating against Varroa destructor, the recommended protocol is mainly based on formic acid with dispensers. So in July and September, and later one treatment with oxalic acid in December either by trickling sublimation or spring. Also, some other biotechnical methods, which also passed, the idea of the beekeeping concept was to include these activities linked to Varroa, which are kind of compulsory if you want to keep your colonies healthy. We have other activities like harvest, feeding, and so on. So the idea is really to maximize the probability of survival of honey bee colonies. And for this, we have precise time points, which are ever based on flowering plants during the first semester. For instance, whenever willow is blooming, you have to do this, when the dandelion is blooming, you have to do that. And later during the second semester, it's based more on the calendar based on months, and also if you still have growth on brood in your colonies. So this concept has been tested during three years on 7000 colonies. So if you respect the concept, during these three years, you had an average 7% of mortality during winter, if you nearly respected the concept, you had still 7.7% mortality, so it was quite close. This is also quite encouraging. If you don't precisely respect the concept, you can still keep healthy colonies. But beekeepers who did not respect the concept had much higher mortality, about 14% on average. So this is quite close to mean mortality in Switzerland, which is 14.5% from the records we get annually. So there is still a lot of improvements ahead to improve honey bee colony survival in Switzerland.

Serra Sowers 11:32

This is incredible. By using acids for Varroa control over three years, the mortality rate was as low as 7%, which is much lower than the mortality rate for honey bees in the US, as Jamie will explain soon.

Guest 11:44

This concept, we clearly think that it's a good means to achieve to bring education to beekeepers, bring resources, and help them design a clear strategy for honey bee health.

Jamie 11:56

And again, everybody, we're going to make sure and link to that in the show notes because actually, I'm interested in reading it as well. It's funny listening to you talk about mortality. Your loss rate, if you follow the concept, is 7%, if you don't follow the concept is 13%, which you say is the average mortality. In the US, the average mortality is somewhere between 30 and 40% a year. So, yeah, I think the average beekeeper here would be happy if they could get down to 13%. But it's fascinating that you guys have this strategy for doing that, we'll make sure to look at it closely and maybe even see what we can adopt here.

Amy 12:31

Yeah, I was actually thinking a lot of what we teach here is also with monitoring for Varroa and also rotating active ingredients. So, I mean, does the Swiss beekeeping concept take that into consideration? Are those things that are in the concept?

Guest 12:49

Yeah, of course. So, monitoring is really the main part. So beekeepers are taught to measure, for instance, with natural nightfall and to evaluate how high it is compared to thresholds, which are defined locally. And then you have to use techniques or measurement methods, for instance, remove drone brood and so on to break down the increase of the manifestation level and later to treat with organic acids. So everything is done, but at each moment of the year, you should know where you are and what references you have to take into account. And if you respect all this, I think the success of beekeeping activities should be good.

Serra Sowers 13:33

Dr. Guichard says here that it is all about monitoring and comparing to the thresholds that bee researchers and extension research sets to keep colonies healthy.

Guest 13:44

So yeah, beekeepers in Switzerland have, I think, a great opportunity to have access to many resources, which are often free of charge, so you don't have to pay anything. They have, really, a lot of knowledge available. And I think if you're interested in keeping bees, you have really nice tools to do it. So I think it's really a chance of Swiss beekeeping.

Amy 14:08

Yeah, that's great. Here in Florida, we have a beekeeping management calendar that we have. So every month we put out what to look for in your bees and how to manage your bees, maybe what to consider. So I think that it's great that you all have one in Switzerland as well. So the other thing that we wanted to talk to you about was the structure of beekeeping, and then the honey bee selection in Switzerland and queen breeding and honey bee selection, finding strong colonies. Let's talk about this. So how do you select for honey bees in your country?

Guest 14:38

Yeah, so this is also a very important topic in Switzerland. So currently, we have three types of honey bees that are selected. We have native dark honey bee we can discuss about a bit later, we have carnica honey bees and also some Buckfast breeds.

Serra Sowers 14:53

That's right. In Switzerland, they have three types of native honey bees, the native dark honey bee, the carnica honeybee and Buckfast breeds, all of which are native to the region. In the US, none of the honey bees are native. Instead, they have been introduced from Europe.

Guest 15:11

So each of these three populations has its own selection program, which is hosted by a breeding organization. So carnica and dark honey bees are recognized breeding associations within Apisuisse so we have a bit more figures about what is done. So mainly, it works like this: We have networks of testing apiaries, where the colonies are created during one year. So the first year, we create the test colonies, the second year of a queen colony is aggregated by beekeepers, and the third year some offspring is produced from the best colonies. So we have 12 colonies for testing. The nine breeding

criteria are honey productivity, gentleness, calmness, swarming behavior, which should be reduced, hygienic behavior against brood and also development of mite infestation. And these phenotypes, which means the traits, which are recorded by the beekeepers are used to calculate breeding values. These are various potential for genetic improvement respectively from a test location. So this is provided by Bee Breed, which is a German website, which is hosted by the German Bee Research Center at Hohen Neuendorf each year. So we have these values calculated. So for instance, for dark honey bees, we had about 200 colonies evaluated per year, it's about the same for carnica. And based on that, we have drone-producing colonies, which started for mating stations. So drone-producing colonies are colonies, which are headed by sister queens, reared from her best colonies, and are placed in remote Alpine valleys, the so-called mating stations. And then, the beekeepers can bring virgin queens in mating nucs. So without any brooders, we use in Switzerland the APDR system, I think you have some equivalents in the US, so very small mating boxes. And from this, the beekeepers bring them to the meeting sessions to have the mated. And in 2020, we had about 15,000 queens produced per year on these mating stations. So always performed only by hobbyists, of course. So I think it's quite a high number, I think about 10% of queens in Switzerland come from one of these selection programs currently.

Jamie 17:40

So when you were talking about the three bees that you have in Switzerland, you had talked about the native dark honey bee. So I'm going to ask you a little bit about this. You've got a conservation program for it, what is so special about this honey bee, could you tell us more about the conservation effort, and for our listeners out there who are really aware of all the different types of subspecies of *Apis mellifera* that exist, could you tell us which subspecies that native dark honey bee is?

Guest 18:06

Yeah, of course. So, when we refer to a dark honey bee, we talk about *Apis mellifera mellifera*, which is native to the Northwestern part of Europe, and all sorts of parts of Switzerland located north of the Alps. Switzerland encompasses central Alps. So the northern part was originally present, but starting in the 19th century, there have been a lot of imports of carnica and linguistica honey bees, mainly from Italy and Austria, which are neighboring countries. This was done to improve the gentleness and swarming behavior of the bees, and this tendency has accelerated since World War II. And currently, if you are outside a conservation area, you have mostly non-selected colonies, which are a mix of different origins. So we refer to it as a Swiss mix. There have been conservation efforts of the dark honey bee because this is the local breed of Switzerland in some conservation areas. So the biggest one is in canton Glarus located in the Alps where we have about 1000 colonies, which are protected by continent row, which means that you are not allowed to keep another breed of honey bees in this region, but it's a small region. It's 680 square kilometers, whereas a second area of 150 square kilometers where about 50 *Apis mellifera mellifera* colonies are kept, but this is a very small area. There were two or three projects in some open areas, but they didn't succeed due to a position of some local beekeepers, which were keeping, for instance, carnica bees and didn't want to transfer their stock. So the current challenges of the conservation areas is to limit a mixture. So mainly in the border areas to some neighboring countries, for instance, and also to preserve genetic diversity in these regions. So there is a lot of work there. Also, there are a lot of debates about how to precisely define a reference

population, how to say this is clearly an *Apis mellifera mellifera* honey bee or not. So these are really some current issues for this project.

Amy 20:20

What about some of the pests and diseases that these honey bees have and how do beekeepers in Switzerland handle these stressors?

Guest 20:29

So if we look at the overall perspective, *Varroa* really remains the main problem for Swiss beekeepers. So as I just explained, it's implemented in the concept how to treat it, how to work with this parasite. We have two diseases with a compulsory declaration. The first one is American foulbrood. But it's not so often present, it's about 50 cases per year. It's quite constant between years. But the main problem we have here is European foulbrood, which is also a bacterial disease. So we have about 400 cases each year currently. So it's been epidemic since 2000, the peak was in 2010 when we reached 900 cases in Switzerland, but since, it's decreasing. So how do beekeepers deal with it? So we have to notify the local inspectors. We have local honey bee inspectors in each canton and these inspectors create one-kilometer radius area around Glarus with European foulbrood. So this cannot be moved and are inspected by the people. So American foulbrood has the same procedure, but the radius is increased to two kilometers. So if we have colonies with symptoms in this region, they are all killed. If in one apiary we have more than 50% of colonies that have symptoms of a disease they are all killed, even colonies without symptoms. Alternatively, colonies with no symptoms in these apiaries can also be placed on Euclems depending on the decision of in spectrum. So yeah, and then the inspectors are going to the next apiary to look if this disease is present. So these are the current traits. There are also new threats, which are coming to the country. So *Vespa velutina* has just arrived from France. We had some first cases in the western cantons, the French-speaking part of Switzerland. So currently, there are some attempts to create a task force, which would perform less detection and destruction. But it's quite difficult to find funding for that. And we are also looking for *Aethina tumida*, the small hive beetle, which is currently present from Italy. So we have a detection program using traps in several apiaries in the Swiss scale, in order to detect for this pest if it reaches the Swiss territory. So these are the main cases we have here.

Jamie 23:07

So I've listened to you talk about bee health in Switzerland, beekeeping in Switzerland, the loss rates, etc. I'm just going to ask you a question that just kind of boils down to management. If there were three top recommendations you would make to Swiss beekeepers regarding bee health, what three pieces of advice would you give them? Because my guess is that you're going to say similar things to what we would tell beekeepers here in the US and to what Australian scientists would tell Australian beekeepers in Australia. So I'm just curious, what do you think are the three most important things you would tell your beekeepers to maximize bee health?

Guest 23:46

So I would say that the first thing is, yeah, if you want to keep bees, be sure that you have the capacity to do so. So bees are farm animals here in Switzerland, so you have to clearly invest sufficient time to keep them alive, you have to have the ability to feed them if needed, you really have to look for their

health. And travel recommendations, which are a bit in line with this, first one, be sure that we have all the types of sufficient fruit available. So put your bees only in locations where you have sufficient diversity of pollen, you have sufficient nectar flows during the year. If necessary, feed your honey bees. And the third recommendation I would also give is don't underestimate Varroa destructor because currently in the media and so on, you have lots of debates about pesticides, about hornets, and so on. But Varroa is still here, and it's still the main problem. And I think many beekeepers are not sufficiently aware of the damage which can be caused by Varroa. So I think these are the main issues we currently have with beekeepers.

Jamie 24:55

That's very well said.

Amy 24:57

I know. I was about to say, it's nice to speak to someone in a different country about honey bees and how we all kind of have the same issues. And so we all have the same recommendations. It's not just on a local level, but it's worldwide, a lot of the issues that we're facing in beekeeping.

Guest 25:15

Exactly.

Amy 25:17

Alright, is there anything else that you wanted to let our listeners know? Is there anything else that you would like to add?

Guest 25:25

So thank you very much for inviting me to present a bit about what we're doing here in Switzerland. So, of course, if your listeners are looking forward to coming and visiting the country, I recommend they have a little look at honey bees here in the Alps. They are not really easy to find because they're located in some small patio hives, like in Slovenia. So you have to look for bees and not for boxes standing alone in the countryside. But there are many beekeepers and I'm sure you can visit some if you come here. But yeah, of course, it's very different from what you have in the US. But perhaps, exchanging ideas and practices could be beneficial for both.

Amy 26:03

We are looking forward to visiting you in Switzerland someday. Okay. All right, everybody. That was Dr. Matthieu Guichard, a research scientist with Agroscope Swiss Bee Research Center, and Apiservice in Bern, Switzerland. Thank you so much for listening to this episode of Two Bees in a Podcast.

Serra Sowers 26:26

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Stump The Chump 26:54

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

Amy 27:07

Okay, we are at the question and answer time, Jamie. I had someone email me, and they had just made a split a couple of weeks ago, and then the same colony swarmed. So what the heck, why did this happen? And does this happen pretty often? This person had said that they hadn't seen queen cells in probably two weeks or so. The colony is a single deep with two honey supers and there's a queen excluder over the single deep. So what's going on here? Do colonies swarm more than once? And what happens?

Jamie 27:40

Unfortunately, Amy, I think my answer is going to be the answer that I hate giving the most because it's like the cop-out answer. But I've got this saying, I've even said that part on this podcast plenty of times, biology is messy. And so if you think about swarming from a biological perspective, you guys have heard me talk about this, swarming is just the honey bee colony's way of reproducing. It's taking one colony and making it two. Honey bee colonies really, really, really, really, really, really, really want to swarm. That's what they do. I mean, everything that can reproduce really wants to. There are lots of swarm management techniques that you can use to alleviate a colony's tendency to swarm or reduce its tendency to swarm, I should say. But that doesn't mean that you'll always win. And since biology is messy, occasionally you can do all the right things and then a colony, against what makes sense to us, still tries to swarm. This beekeeper made a split from this seemingly strong colony with the hopes that hey, this split, which is what a lot of commercial beekeepers do for swarm control, splitting out this colony will hopefully reduce the parent colony's tendency to swarm. A lot of times it does. In this case, it didn't. There are always exceptions to the rule, which is why I would argue, especially from the swarming perspective, you've got multiple management strategies in order to get on top of swarming, you can't just rely on one or the other. This individual also mentioned that they hadn't even seen queen cells a couple of weeks ago when they made the split, yet a swarm happened after that. And colonies can get into swarm mood, they can want to do it despite our best efforts. Sometimes, I've done everything seemingly within my power to stop a colony from swarming, and then it just swarms. And that just happens. If you think about a bell curve, your experience was just kind of one of those fringes of the bell curve and not what usually happens when you go to great lengths like you've done. So, my only way of explaining it is sometimes nature wins, and despite our best management efforts, I think that's just what happened here.

Amy 29:51

I think that's fair. Sometimes, when people are asking us questions, it's so hard to answer it with one definitive answer because there are so many factors.

Jamie 30:04

You are so spot on. I will tell you, Amy, when I was 18 years old and a freshman at the University of Georgia, I'd been, at the time, keeping bees for six years so I knew everything there could be known about keeping bees.

Amy 30:17

Right. Exactly.

Jamie 30:17

I used to answer people so confidently. And the older I get the more I'm like, "Well, I just don't know." I mean, I want you guys to think about it from the perspective, Amy, that you just made. When we are sick, we go to the doctor who gets a chance to look at our throat, look in our ears, take a urine sample, take a blood sample out, on and on and on. And if it's something confusing, they do more tests. And when it's really confusing, it's more and more tests and more and more specialists. But you're right, we get asked questions a lot that we get no pictures, no videos, and we don't get to see it ourselves. And we're really just relying on the story told by the questioner and hopefully we piece enough information together to give an answer that we hope will be helpful. Sometimes, I'm off the mark. I hope it helps, but you're spot on, Amy. Sometimes, I just don't know what to say except, "I hope it works out for you better next time."

Amy 31:08

Oh, my goodness. Okay, that said, let's get to the next question. So the second question is, what are the advantages and disadvantages of encouraging propolis deposition?

Jamie 31:18

Well, you're in luck, because this is one of those questions I feel like I can answer. Well, maybe it's 18-year-old Jamie just thinking he knows the answer when he doesn't really. But propolis is that sticky stuff that bees collect as rosin or saps or any sticky stuff from the environment that they bring back to the hive and deposit in cracks and crevices around the nest. So the question is, what are the advantages and disadvantages? I'll do the disadvantages first. Beekeepers, historically have not liked propolis because it's sticky. Right? Bees use it for many reasons, but because of their use of it, and because of where they deposit it in the hive, it makes, or at least it can make it difficult for beekeepers to remove frames, take boxes apart, take the lids off the hives, etc. It's just mildly annoying. So the biggest disadvantage that I can think of is it can be annoying to work around. But I would argue that the advantage so outpaces the disadvantage that that disadvantage is just a mild annoyance, and I don't think warrants us doing anything to stop it. And what do I mean by that? Well, the advantage is that propolis has antimicrobial activities and there's a growing body of research evidence to suggest that bees that collect it and use it, that it has a use against the microorganisms that bees encounter. In fact, Marla Spivak and her team at the University of Minnesota have shown that when you add propolis to the walls of a hive, those colonies tend to have lower pathogen loads. And so I think that the advantage of bees using lots of propolis is that it is an innate natural immune system that kind of helps them combat pathogens, and to me, that will far outweigh the minor annoyance of having to work a little bit harder to get that frame out or get those two supers apart or something like that. So those are the basic advantages and basic disadvantages. If you're looking at your colonies and think, "Man, these things have too much propolis," don't sweat it, that's working in your favor.

Amy 33:22

You'll just get better at using your hive tool.

Jamie 33:25

That's right, and your forearms will get bigger and stronger.

Amy 33:29

Okay, so for the last question, this person went through colonies, they're looking in their supers, and it's just full of honey. So the supers were on last fall when they had their nice golden rod flow. But they also had amitraz treatments in those boxes. And so, this person can't use the honey for human consumption, but they're wondering, what should they do with the honey bees? Is it okay for them to leave those full supers on the colony for honey bees to eat? Is there anything different that they should do with them while we head into spring?

Jamie 34:01

Yeah, good question. Number one, it demonstrates that the questioner is really thinking about the application of this amitraz treatment. I'm assuming it was Apivar. If you look at the label for any treatment at all, it'll tell you whether or not it can be on colonies or in hives at the time that honey is being produced, honey that is for human consumption, or marketable honey. This individual recognized that the honey that was made was made while that amitraz was present and that it's not something that he or she should extract and use for human consumption. All that's great. So the question is then, how can I use it because it seems like I've got a bit of a surplus of it right now? So what I would tell you is, number one, I would either leave it on that colony, those colonies that have a lot of that, I'd just leave it there because the bees will eat it, or I would distribute it amongst all of my colonies and use that honey to replace empty combs that might be in some of the honey feed supers in other colonies. So just let me explain something quickly, and this is just one of these Jamie opinions and not research facts because I'm going to tell you how I tend to manage colonies. In my own situation, I have a single deep brood box as the brood chamber. And a medium super is what I call a food super. I separate the two with a queen excluder so that that medium super above the excluder is what the bees keep year-round. So in my case, if I had a couple of other colonies that had two or three supers of this honey I knew I couldn't extract, I might distribute those frames from those supers into the food supers of my other colonies. So I'd go through those other colonies, look in their medium food super, say, "Hey, here's some empty combs," take those out and put in that golden rod honey that I had into those supers just as feed for bees. I'd want to make sure that it doesn't end up in any supers that I might end up extracting for human consumption. But it's still fine for bees. And I'd either store it on the colonies that made it or I'd distribute it amongst all of my colonies just to beef up their food reserves.

Amy 36:07

Sounds good. Alright, so thank you so much, everyone, for your questions. We look forward to receiving more of your questions. Again, don't forget to message us on our social media pages. We are on Facebook, Instagram, and Twitter.

Serra Sowers 36:25

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.