Episode 38 Mixdown PROOFED

Wed, Apr 13, 2022 12:21PM • 1:12:50

SUMMARY KEYWORDS

bees, beekeepers, honey bees, swarm, site, hive, bee, nest, colony, lands, honey bee, scouts, commercial beekeepers, honey, varroa, question, entrance, tom, dance, started

SPEAKERS

Guest 2, Honey Bee, 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. Hello, everyone! In this episode of Two Bees in a Podcast, we'll be joined by Eric Silva. He's a consultant for the American Honey Producers Association. He is working with them to address issues surrounding keeping honey bee colonies on public land. This is not only an issue that happens in the US, but is an issue that beekeepers face, really, around the world. In our second segment, we'll be joined by Dr. Tom Seeley, who's a professor of Cornell University. Tom is the world expert on honey bee swarm biology. And he's going to be discussing with us how honey bees choose nest sites. And of course, we'll end today's podcast with our question and answer segment. Welcome to this segment of Two Bees in a Podcast. You know, Amy, we have a really interesting segment to me today.

Amy 01:40
Don't we always have interesting segments?

Jamie 01:42
We do, we do. And I think this one is really interesting because I think it's important for beekeepers, because I think it's something a lot of beekeepers around the world are going to start to face. It's been born out of, in many ways, bee losses. So let me give you a brief background of what I mean. So I was hired at UF in 2006. Right about that time is when commercial beekeepers in the state started saying, we're losing large amounts of our honey bees. People became aware of honey bees and the importance that they play in agriculture. But this loss of honey bees not only created more honey bee labs around the US, but it also created more native bee labs around the US. And as both sets of labs were being born, as it were, there arose this kind of subtle, and I hate to use this word, but the subtle

conflict between honey bees and native bees. Honey bees are not native to North America, even though they've been here since the 1620s. But a lot of people started making claims that honey bees are causing problems for our native bee populations and that little summary has popped up and manifested in all sorts of ways. And one of the ways it's manifested is there's been efforts, as an example, to keep honey bees out of federally managed lands in the US. I know that this is not unique to the US. The few times I've been in Australia, the Australian beekeepers have had similar issues trying to get their honey bees on the public lands since honey bees aren't native there either. And so today, we're actually joined by an expert on this topic, navigating this issue at the federal level, addressing honey bees on federal lands, but specifically for purposes of this segment, honey bees on Forest Service lands in the United States. So we're joined today by Eric Silva. Eric is a Federal Policy Advisor for the American Honey Producers Association. He owns and manages his own outside consultant business where he's a federal lobbyist. He's been representing the American Honey Producers Association since 2007. He's located in Washington, DC. Eric, thank you so much for joining us on Two Bees in a Podcast.

Guest 03:44
Well, thank you for having me. And that was an excellent introduction of the issues and the timeline, coincidentally, aligns with mine. As you say, I've been representing the American Honey Producers Association since 2007. Just at the beginning, really, of the American crisis for commercially managed honey bees and for native pollinators. And so I've learned, along with the beekeepers I represent, the many challenges that they have, the potential solutions, and the interaction with federal government from Congress to the agencies. And so it's a continual learning process. As you note, there are some subtle conflicts within the community of those that do, I believe, in all good interest to protect pollinators writ large, including commercial honey bees, commercially managed honey bees, but there are some nuances and some conflicts out there. And I spend most of my time sort of at the center of the various stakeholder interests, trying to manage those.

Jamie 04:49
So let's start at the top to set the stage. Your commercial beekeepers in the US can manage hundreds or thousands and many thousands of colonies and it's not always possible, obviously, most of the time, it's not possible for them to own the land to put these colonies. And so commercial beekeepers, not only in the US, but around the world have relied heavily on some publicly available lands to be able to move their bees for honey production purposes, for many reasons. But there's kind of arising this conflict, at least within the US, that perhaps honey bees shouldn't be placed on these areas because they can potentially damage native pollinator populations there. So can you tell me a little bit about the background of how you got into this issue, what the issue is, and just kind of introduce our listeners to that before we kind of start asking specific questions related to this issue?

Guest 05:39
Sure. Yeah, as you've noted, in the US, we have both federal lands that are that are, as they say, they are the property of the federal government and managed by local land managers under that hospice. And then, additionally, we have incentives. So there are federal incentives, such as, for conservation incentives, for agricultural production lands to be used for the benefit of conservation and include things

such as supporting pollinators. So those are those different buckets, but very much the same. How I got into this is by representing commercial beekeepers in Washington. Around 2007 is when we kicked this off, and really in the 2008 Farm Bill, we were looking at this issue, where commercial beekeepers had been losing, on average, under 10% of their bees in a given year. And quickly, in 2006 and '07, that escalated. And we were looking at losses anywhere between 20 and 70% for large commercial beekeepers. It was startling to them, it was devastating to some of the businesses to try to figure out what to do. And the federal government rightly decided that there needed to be a partnership. Now, the answers were not all there. And so that that developed over time from symposiums and meetings and from scientists to policymakers to beekeepers to various stakeholder groups and got together and try to start sketching out what those solutions would be. And one of the key components was we realized quickly that the landscape had changed dramatically in America. And so the Upper Midwest, in particular, where beekeepers had kept their bees for many, many years, and had moved primarily, if we look at a particular state, North Dakota, but think about all of those states from North Dakota, South Dakota, Montana, Minnesota. Those were the primary honey production states and prior to that time, they had enjoyed quite a bit of conservation land. And that was that kind of second bucket where there's incentives for growers and farmers to put some of their land into conservation and beekeepers enjoyed that relationship. For a number of reasons that we could go into, that land started shrinking quite a bit. And so landscape views became a big focus. Where can we get the abundant available landscape with good forage that that large scale commercial beekeepers could use? We're not talking about a handful of hives here. So we needed large scale use. So a focus on federal lands, Federally Available lands and conservation lands, became one of the topics.

Amy 08:32
So that's very interesting that that happened then. I mean, so I guess I have two questions. One is how did the Forest Service get involved at that point? How did that connection happen from the point of looking for property and land for the honey bees? And then also, I know that that has changed since then. So I guess I would love to hear just that story and the history of the transition between needing property and needing land for commercial managed honey bees, and then how the Forest Service got involved, and then, what has changed since then?

Guest 09:10
Yeah, so, I should say, just to be clear, I mean, the Forest Service has always had what's called a multiple-use mandate under law, and so beekeepers, for generations, really, at this point, a couple have been accessing Forest Service land and petitioning to put hives on there. So, I don't want to characterize the Forest Service as a place for commercial hives to be placed as a new thing. But in the context of the broader picture for seeking available lands, this has become a newer issue. So let me just take a step back. You asked about the timeline. And I think, as we know it, in '06-'07 things started, '08 Farm Bill, we got quite a bit of language in there for new research dollars, for guidance to USDA, for example, across agencies. But really, in 2012 is when things kicked off. It was the Obama administration, for a couple years, had been working with us and working with other stakeholders to look at the pollinator issue as a whole. How do we protect pollinators? They released a very in-depth strategic plan in 2012 that we're all a part of. It looked across the various federal agencies, what can we do to improve this situation? That plan acknowledged the various stressors that bees were going

through from chemical stressors, pesticides, as well as diseases and mites that they struggle with and all over the world. I think beekeepers are struggling with that. But then it focused heavily, again, on foraging nutrition. Where can we get it? And in there, there was a focus on: We really need to expand the available resources for pollinators on conservation lands and on our federal lands wherever possible. And even on right aways, they were talking about at that time, in terms of thinking about utility right aways, and where can you plant more beneficial plantings for bees. And so that's sort of where this all started, where we try to focus, how can we use these lands better for bees? And so since then, commercial beekeepers across the country have sought permits to put their bees on lands, in most cases without incident. In some areas, that has been more of a challenge. And only recently, and I would say, starting in about 2017-2018, has this kind of conflict started to arise between some stakeholder groups who are focused exclusively, we think, on native interests, and have raised a challenge against commercially managed honey bees using Forest Service lands.

Jamie 12:03
Eric, that leads exactly to my next question, which is, is there evidence that honey bee or managed honey bee populations actually harm native pollinator populations? I've read the research, I know what, available, is out there. But what's the argument that you're making for the harmony of the two?

Guest 12:22
Yeah, so that's, I guess, the key question, right? Although, I would say that, regardless of the answer to that question, when we're talking about Forest Service lands, what we are not talking about are National Parks and National Wildlife Refuges that have an exclusive conservation mission. Forest Service lands, under federal law, are multiple-use mandate lands, right? So in particular, it's called multiple-use sustained yield act, but that is to balance the interests. And so we can get into that a little bit more because that's not directly on point of your question. But I will say, on point on your question, in terms of is the science there? I am certainly not a scientist, and I'm not even an environmental lawyer, but we've consulted with both. And since 2018, when there was a report that was filed, it was titled "An Overview of potential impacts of honey bees to native bees, plant communities, and ecosystems in wild landscapes." And it was posed as a recommendation for land managers. So that was the first time that we had seen a proposal, a white paper come about that was being circulated among land managers, and that had gone directly to the Forest Service. And so we're able to review one of the arguments that these groups are making against honey bees being on, in particular, Forest Service lands, and we reviewed that. We did hire science advisors. And their conclusion to us was, this is overly general, it's unsubstantiated, the science is absolutely not conclusive about whether honey bees on these lands out-compete natives. Is there some evidence and studies that honey bees can out-compete natives? Certainly. But is there some evidence that honey bees can be beneficial on Forest Service lands? Certainly. What is not done, what has not been done is any kind of comprehensive review to figure out what those balance of interests are and whether a report like that, that ostensibly told land managers not to let honey bees on, could be substantiated. And so we feel strongly the science is not there. We have been calling for more science to be done since 2018 at the Forest Service level, as well as at USDA, and there's some evolution happening there. And we also continue to work through our channels at Honey Bee Health Coalition, which is a coalition that brings together a diverse set of interests, including native pollinator interests and growers and us as to try to solve some

of these problems. So we've had a conversation about level, too. Where can we get the science conclusive? But it's certainly not there now.

Amy 15:10
Yeah, it sounds like Jamie needs some grad students to start doing some research. I know that we actually have our audio engineer, James Weaver, which everyone, I'm sure, has heard his name by listening to our podcast, he actually is doing a research project on just that, I think, right, Jamie?

Jamie 15:27
Yeah, there are a lot of these projects that are popping up in bee research labs around the country, and for that matter, around the world. Because this is a hot topic, not only from the beekeeper perspective but just from the raw science perspective. People want to know the answer to that question. So yeah, Amy, you're spot on there. It's happening here at the University of Florida, as well as elsewhere.

Guest 15:46
Yeah. And that's, that's great to hear. And we encourage as much as we can. And as we've said, I really do want to downplay this kind of notion of conflict and make it -- it is a minor conflict. And the reason I say that is there are a lot of groups that focus on native pollinator issues. Most of those groups, and I would argue the most credible groups in the sense that they are really trying to facilitate dialogue among the myriad of interests that need to be balanced in American agriculture, American conservation, such as pollinator partnership, have noted that this issue is not conclusive. So, they, at the same time, as Pollinator Partnership, for example, had put out a report. And if you read that, you'll see what their conclusion was. In the end, it was that science needs to be conducted on this and not that, that we should be making land management decisions on this basis now, which, we think, is responsible. But some other groups are exclusively focused on cutting right to the land management decision, instead of figuring out what the real problem is, if there is really a problem.

Amy 16:58
Sure, that's interesting. So I guess, just generally speaking, because you are the Federal Policy Advisor for the American Honey Producers Association, I'm wondering what the association is doing, specifically, to make it possible to keep managed honey bees on public lands?

Guest 17:17
Yeah. So, I would note that late July, actually, July 29, to be specific, a petition was filed with the Forest Service. And that's really, I think, what brought us together here today. And that petition calls for the Forest Service to eliminate the use of wood called categorical exclusions for permanent apiaries on Forest Service lands. What that's saying is, do not allow any apiaries on Forest Service lands anywhere, and they want a number of very specific things to happen. Again, we think that, not only is that a step too far, that's many, many steps too far, on the basis of their own request. If you read through it and look at the footnotes, they don't have the science to substantiate any of their claims. It really kind of looks to us like a bullying tactic set up for litigation to force the Forest Service into certain decisions. I'll bring it back. What are we doing? We, of course, have been forced, as a result of that, to hire counsel. And we are preparing a response point by point to their petition. So the Forest Service

has both sides in hand, and can rule accordingly on the petition. We fully expect that the folks that have put that petition together will then after being denied, because we believe that will be the result of that since they can't support their request, will ultimately go probably down some line of litigation, and we'll be prepared to handle that. Again, I will point back what they ignore in their petition and what they ignored in their 2018 report was the very basis upon which that the National Forest System is built upon, which is a multiple-use. That means that you have to take into account not just conservation as they may be looking at or more protection of natives. First of all, you must show that there's actually a threat to those. But in addition, you have to balance out for the purposes of these lands only what the other benefits might be? It's a risk vs. benefit analysis. And I think it's clear to say that the United States recognizes that keeping a large viable, commercially managed honey bee population, not just alive but thriving, is in the national interest. Ignoring that is just kind of irresponsible, I think, at best, but, at worst, it just seems to us as a ploy to engage in single-issue advocacy that's not in the interest of all of us working together.

Jamie 20:04
Let me ask you a question, Eric, because I understand the points that you're trying to make. And I know a lot of things in the US get settled in the court system. But from someone who thinks both sides can come to an amicable agreement, what are some recommendations that you have that will allow kind of both sides to come out winners in this process? The beekeepers to be able to have access to, in this particular case, Forest Service lands, but also make it where those people who are advocating native pollinator health, which of course is important, too, to allow them to get some of what they think is important. So do you have some recommendations that you'd like to see in place that could probably help bring a remedy this situation?

Guest 20:48
Well, I mean, I think it's a great question. I also think it's one that I'm not going to answer. And the reason for that is -- I did not mean that in any negative way. It's just, unfortunately -- so I'm going to answer the reason why I can't answer that. We have spent since 2007, 13 years, at this. The very way in which we've been doing this is by facilitating dialogue among many stakeholders. This is not a native versus honey bee issue. We have stakeholders from pesticide registrants to the grower community, to us, to land managers, to native interests, all of these things are part of the story. Without everyone working together, we will never arrive at a solution that protects pollinators. We've all recognized this, at least in the American context, and I assume it's the same all over the world. We've created coalitions that have been stood up and are now, essentially, not coalitions. They're almost free-standing entities because there's so much work to be done to solve all these problems and balance interests. It is unfortunate, in my mind, in my client's mind, and I think, frankly, in a large subset of the native pollinator-focused groups' minds, that groups would branch off and try to use the law and our petitions to challenge on a baseless level what we're all trying to work to solve. So I will say on behalf of my client, honey bees and commercial beekeepers, are trying their very best to balance the interests of production, agriculture, their own interests, and native interests. It's a very difficult thing to do. But it's one we've recognized is essential. There's no way that the American beekeeper thrives and survives on the future without recognizing that they're wedged directly in between commercial production agriculture and native interests and conservation interests. So the reason I can't answer that is because

a subset has decided that they want to make this adversarial, that they want to petition, and then they ultimately may want to litigate. And so I could provide recommendations here. But why would I do that if that's not what they obviously want to do? There are plenty of recommendations, they're aware of the recommendations, they have seats at the table. Apparently, that's not what they want to do.

Jamie 23:19
So Eric, I think you probably ended up answering the question without intending to answer, which is dialogue is important. And I think one of the issues that seems apparent here is that this is a complex issue to address. And as you mentioned, there are many stakeholders involved. It's not just a commercial beekeepers / native bee advocacy issue. It's pesticide issue, it's forest service issue, it's a federal land issue. There's just a lot of people who have their fingers in the pot. And it always it all starts with dialogue. So Eric, I really appreciate you joining us today on this podcast segment. It allows us to introduce this issue to our own bekeepers in the States as well as the listeners from around the world. So Eric, thank you so much for joining us.

Guest 23:59
I appreciate it. I appreciate having the time to talk with you. And anytime you want to continue the dialogue, I'm happy to do so. And I look forward to somewhere down the line where this isn't the issue of the day anymore, and that we've resolved some of these issues and we can find a way to keep both native and commercially managed pollinators alive and thriving and also serve the important interests of production agriculture in America to the tune of about $20 billion in output a year that rely on these pollination services. So thank you.

Jamie 24:39
Everyone, that was Eric Silva, the Federal Policy Advisor for the American Honey Producers Association. He's represented the AHPA since 2007, located in Washington, DC, talking to us specifically about some of the issues with commercial beekeepers and beekeepers in general, surrounding the issue of them being able to keep their bees on federal lands. So Eric, thanks again. Everyone, thank you for listening to this segment of Two Bees in a Podcast.

Honey Bee 25:12
For more information about this podcast, check out our website at www.UFHoneyBee.com

Jamie 25:26
Hello, everyone, and welcome to this segment of Two Bees in a Podcast. Amy, I'm like a kid in a candy store today. You know why?

Amy 25:33
Why is that?

Jamie 25:34
It's because we are joined in this episode of the podcast by Dr. Tom Seeley. He's a professor from the Department of Neurobiology and Behavior at Cornell University. I talk a lot about his work when I'm

giving presentations around the world. I admire his research and how he manages his lab. And it's always a joy for me to watch what he does, and so I'm really excited, Tom, that you could join us today. Thank you so much for joining us on Two Bees in a Podcast.

Guest 2 26:00
Thank you very much for inviting me. It's a real pleasure to be with you.

Amy 26:04
You forgot a very important piece. He's the author of Honey Bee Democracy.

Jamie 26:09
I'm heading there, Amy.

Amy 26:10
Are you?

Jamie 26:11
Yeah, what I was going to say is that I speak a lot about swarming biology, I speak a lot about super organisms, and other things, just the biology of honey bees when I go give talks around the world. So Tom, your work, your name sneaks into almost every one of my presentations. So a lot of people are excited to hear your talks, they're excited to read your work. When we brought you on today, one of the things I was thinking is there's just so many different things that we could fill a segment with talking to you about. But today, Tom, we're going to focus on a lot of your work related to how honey bee swarms choose their new homes. But before we get there, Tom, I like our listeners to be introduced to our interviewees. So if you could just kind of briefly tell us about yourself, your background, and how you got into honey bee research in the first place.

Guest 2 27:01
Certainly, Jamie. I got into my honey bee research starting when I was a little less than 10 years old, and I watched a swarm fly down the road and move into a cavity in a black walnut tree near my parents' house. And that was a great experience. It mesmerized me, it fascinated me, and created all sorts of mystery. So I count that as the starting point of my investigations or fascination with honey bees. From there, I started becoming a beekeeper, I think I was 17 years old, I got my first hive. And when I went away to college, I found myself writing every term paper on something to do with honey bees. At one point, I thought I was going to become a medical doctor, but I realized I was more, I am more interested in the inner workings of honey bee colonies than the inner workings of human bodies. So I went and followed my fascination with the bees. I started a career as a professor whose research focuses on the behavior and social life of honey bees.

Jamie 28:05
I think that's a really neat background. It's not actually that different from mine. I started when I was pretty young. I didn't see a swarm. I actually, I hate to admit this on the air, I had a dream about honey bees. And I have no reason. I was a young kid about eight or so. And anyway, I started keeping bees at

12. But when I went to college, I also wrote most of my papers on bees, and I too thought that I was going to be a medical doctor but ended up doing bee research, and I'm obviously happier for it. So that's kind of neat, Tom.

Amy 28:31
Did you really, Jamie?

Jamie 28:32
I really did. I went to University of Georgia pre-vet, then I switched to pre-med, and then I'm like, "You know what? I just like bee research too much." And Tom, it sounds like that's kind of what happened to you.

Guest 2 28:41
Yeah, I think that behavior of choosing your subject for your term papers is a very honest indicator of where your interest is.

Amy 28:51
So earlier, I'd mentioned that you are the author of Honey Bee Democracy and part of that book talks about how honey bees choose their new home. And so that's what we're talking about today. Can you tell us a little bit about this process? I know that this is something I feel like every beekeeper and non-beekeeper are just really excited to hear about. What is that? What does that process look like?

Guest 2 29:14
Let's start aiming at the beginning of the process. And I'll share with you, now, something I learned only in the last several years recently. And it is that the process of choosing the new home starts even before the swarm has left its old home. We now know from working with watching swarms emerge from observation hive colonies, we've seen that the scout bees start going out two or three days before the swarm makes its mass exodus, and they're searching out for home sites and even performing dances inside the old nest to start the process of informing the other bees, the other scout bees of what the options are.

Jamie 29:55
So Tom, may I ask you a quick question? I certainly hate to interrupt because I know you're going to say some really cool things that follow, but there's something that I thought about while you mentioned that. If the scout bees are scouting for new nest sites, are they coming back and communicating that in dances? Or are they simply on a reconnaissance mission? Because my question was going to be if they are, in fact, communicating this through dances, how do the watching bees separate nest site information from forage information? But I guess all of that is predicated on whether they dance for it or not or if it's just simply reconnaissance.

Guest 2 30:28
The nest site scouts start to do dances, advertising potential home site in the old nest site. So the whole process starts in advance before the exodus. I don't know specifically how the dances that are

advertising nest sites are distinguished by the follower bees from dances performed to advertise food sources, but my hunch is that it's aroma. If a bee coming back from a flower patch smells like flowers, a bee coming back from a tree cavity probably smells like a tree cavity.

Jamie 31:00
Absolutely fascinating. So what happens after they start these kind of reconnaissance missions?

Guest 2 31:05
Well, the next step is, I've never seen the process, the decision be completed before the swarm leaves but I think that can happen. And we'll talk more about that. But usually, what happens is that these nest site scouts, when they sense the conditions, the weather conditions are favorable outside to have the swarm leave the old home and move into a cluster outside, they then run around the nest producing two signals, worker piping signals to tell everybody to warm up and then buzz runs, which stimulate the other bees to make the departure fly out of the hive. And then once they've got a mass of bees flying outside the hive, our little nest site scouts then collect where they're seeing bees gather, they then release the assembly pheromone from the Nasonov gland to help the bees collect in one place.

Amy 31:59
So I'm interested to know part of the research that you all did. How did you test the pheromones, like the differences between the pheromones of the honey bees?

Guest 2 32:07
Well, let's see. This is work that preceded my own work with swarms. It was done by Professor Roger Morse and Rolf Bach at Cornell and one of the University Research Institutes in Canada. What they would do is they would do an experiment where they would take a swarm cluster and move the queen from one location to another location. And then they put out different kinds of lures with different pheromone compositions and they would see which one enhanced the clustering most effectively. And that's what revealed that it's primarily the Nasonov the gland secretion, not the queen's pheromone, but the Nazonov gland secretion from the worker bees.

Jamie 32:49
So Tom, there are really many amazing steps in the swarm process to me. So we interviewed Dr. Juliana Rangel some time ago, and she had mentioned to us about the bees, the scout bee starting to search for new nest sites while they're still in the the old nest. And then, of course, they swarm and form that bivouac, and from there, they continue searching for new nest sites. To me, one of the most amazing pieces of this puzzle is what bees are searching for, what they're able to know about that new nest site, and what they're able to communicate about that nest site with regard to quality indicators. What makes them like a nest site? What are they looking for? And how can they determine the quality and then communicate that quality to their sisters?

Guest 2 33:35
First of all, what they're looking for are about five or six different things. Let's focus on the entrance. The entrance is very important to the colony. They'd like an entrance that's high off the ground, five meters,

15 feet or more. They'd like an entrance that's small, just no more than two to three square inches. Ideally, that entrance will be facing south. Ideally, that entrance is near the bottom of the nest cavity, not the middle or the top, but right at the bottom. And all of those things about the nest entrance are important because the entrance is, of course, the point of defense of the colony and they want that entrance high off the ground for safety. And maybe in places with winters, it prevents the nest entrance from getting plugged with snow. And likewise, they want it on the south side of the tree so it's nice and sunny. So those are four traits. Another trait that's important to them is the cavity size. They don't like the cavity too small or too large. What I know they will like, and this is based on experiments, is they like nest cavities that's about the volume of one deep hive body. Not half a hive body but not two deep hive bodies, but just one, which is relatively small. That's what suits their needs best. That's so interesting. I'm just thinking about, obviously the Langstroth hive and how we use that in just the beekeeping community, and I'm just thinking about entrance reducers. Does it make more sense for us to always have an entrance reducer to keep that entrance smaller like you're saying with a two to three inch opening?

Jamie 35:10
So Amy, that's a pertinent comment. When I lived in South Africa for our research purposes, keep Africans subspecies of honey bees in Langstroth hives, and they would have that big wide Langstroth entrance. And they would always reduce it down to about the size, Tom, that you mentioned using propolis. So it didn't matter how big of an entrance we gave them. They would they propolize the whole entrance and close it to about that gap, Tom, that you mentioned.

Guest 2 35:36
Yeah, that's really neat, Jamie. I didn't know that. And so I'm really glad to learn that that was a routine thing for them. I see it occasionally with my hives, especially in the fall, even of like a small entrance, they'll build a curtain or wall with propolis.

Jamie 35:48
Honestly, Tom, I think we've bred a lot of that propolis hoarding behavior out of bees, and so we don't see it quite as much. But I know in the end, at least with the African bees I was working, they did this routinely.

Amy 35:59
Yeah, pretty cool study. Okay, so back to finding a new home. All of these scout bees are looking into different places. And I know that in Honey Bee Democracy, it talks about how these bees come back and basically try to convince all these other workers to kind of follow them, so they can all kind of choose together which site is the best site to choose? And so how is the winning nest site chosen with all of these foragers going out looking for locations and coming back?

Guest 2 36:29
It's not foragers going out, it's nest site scouts. The way it works, this will address part of your previous question, how do they express differences in the quality? How do they communicate the differences in the quality of their sites? It's very simple. If a bee finds an excellent site, one that fulfills the homesite

preferences of the bees, the bee will perform a long-lasting waggle dance to advertise that site. And when I say long-lasting, I mean that the dance can persist and keep going on and on for several hundred dance circuits. And that means for several minutes. Whereas, if it's only a mediocre site, the bee might only do 20 or 30 dance circuits. And so the dance would be over in maybe 20 or 30 seconds. And if it's a really poor site, she won't dance for it at all. What biases the interest in favor of the better or best sites is the length of the dance advertising that the nest site scouts produced to advertise their finds.

Amy 37:27
Got it. Well, I'm so glad that we have you on here because clearly I didn't know the difference between a forager bee and a scout bee. Are they the same age? I mean, what's the decision between the foragers and the scouts? Are they different ages?

Guest 2 37:41
Yeah, I'm glad we're talking about this because the nest site scouts seem to be drawn, well, they are drawn from the ranks of the oldest bees. So they were foragers before they became nest site scouts. And the difference between a nest site scout from the general forger has to do with, we know this from work done with Gene Robinson and one of his students, if you look at the patterns of gene activity in the brains of nest site scouts and compare them to foragers, we find that certain genes that are involved in learning are very tuned up, highly active, much more active in nest site scouts than foragers in general. And that makes a lot of sense, because that's what these nest sites scouts have to do. They have to go out and search and search and find places and when they find a place to learn a lot about it, and then memorize the sense of goodness of the site and then convert that into a dance when they get back.

Amy 38:38
That's pretty cool.

Jamie 38:39
Tom, you're making so many statements that I want to ask a thousand questions on, and so I'm going to try to temper my excitement here. But one of the things that I heard you say that I really am curious about, given that they're dancing longer dances for better quality sites, and they're making more of these circuits, have you teased apart what nest site qualities are more important to the bees than others? Is there a rank? Basically, what I'm hearing is that the bees are coming back and saying, "This site is good. It's mediocre. It's not as good." But what qualities influence those categories more so than others? Is it nest cavity? Is that the entrance size? I mean, if they have to choose between suboptimal nest sites, what's the quality that's going to push one side over the top?

Guest 2 39:29
It's not any one quality. The bees are assessing the site's overall goodness. But your questions are really relevant because, I would say, in my experience where I've done these tests, where I've put out nest boxes of different designs and sets of two or three or five, and all of the boxes in a set are the same except the entrance opening size or the height off the ground or one of the other variables, what I

remember finding from that, the height off the ground and the entrance size, the bees showed no hesitation. They would only accept an entrance that was high off the ground, and they would only accept the small entrance. So those two factors, which probably relate to controlling the microclimate and giving the colony safety, my impression is that those are the two most important nest site characteristics that define a good site.

Jamie 40:20
That's very interesting because I had no preconceived notions. But my guess while listening to you is it might be cavity size given that affects the size of the overall colony. But that's interesting that it might be height and nest entrance size. So these bees are coming back, they're dancing, these other sisters are following the dance, how do they ultimately vote upon these particular sites? How is that final site chosen?

Guest 2 40:42
If I may, Jamie, I do want to add one more comment about your --

Jamie 40:46
Please do.

Guest 2 40:47
When I did the tests where I gave them a choice of volumes of sites, would give them a choice of 10 liters, 40 liters, 70 liters, 100 liters, 140 liters, they would never accept a cavity that was too small. So I have to say that they're very careful about avoiding undersized nest cavities. And I think we can all understand that a colony needs enough space to live in. But if it's a little more than they really want, they will accept that. So let's see, what was the second part of the question or the real question you were asking?

Jamie 41:19
Sure. So, the bees are dancing for the sites, there might be multiple sites represented by multiple scout bees here on the surface of this swarm cluster. And so how does that cluster ultimately decide we're going to site B, rather than sites A, C, or D?

Guest 2 41:34
Thank you for asking that question, Jamie, because I spent several years trying to address precisely that question. It works as follows. And it was kind of a surprise. What goes on is it's an evidence race. Different scout bees come back from different sites, and they are dancing. And the vigor or the persistence of their dances, the duration of the scout bees dance varies according to the quality of her site. Now, what's the effect of that? That means that the better the site, the more bees can attend a nest site scouts dance. And that also means, with more bees attending the dances for the best nest site, more bees visit that nest site than any of the other nest sites. And when a nest site scout goes to a site, she spends about 30 to 50 minutes at that site checking it out. And what one sees is that, in an experiment, if you put up two nest boxes, one is first rate and the other is mediocre, you will see there are many more bees building up more rapidly at the better site, and the bees who are going to that site,

they are noticing whether the site they're going to is a popular site, has lots of bees there, or has only a few. And when the number of scout bees at a site has built up to what we call a quorum, then that tells the nest site scouts at that site that their site has proven sufficiently attractive to enough bees, that that is the choice. And so that's how they make the decision. They differentially advertise the sites according to the site's quality, and they see which site reaches the buildup of a quorum of bees first, and then that becomes the chosen site.

Jamie 43:22
One of the things, Tom, that I found fascinating in Honey Bee Democracy is, if I remember correctly, how the scout bees are simply representing truth in their dances. They're not trying necessarily to persuade you to vote my way, they're just simply telling you about the site. It's an honest assessment of the site. And I know in your latter chapter in that book, you present that as a model for humans making decisions. So I found it really fascinating that the dancing bees are saying, our site is good, it's poor, it's mediocre, or what have you, and that's how the decisions are made. I think that's a really neat aspect of this whole decision-making process for the swarm.

Guest 2 44:03
It's a really important one too, Jamie. I'm glad you're highlighting that because it means that a site will only win in this competition to be the first site to reach a quorum if lots and lots of bees are also enthusiastic about the site. In other words, you could get a scout bee that misunderstands her site or she's not wired up correctly, and she might do a really vigorous dance for a lousy site. But if she brings other bees, they're going to check her. And if they don't like it, they're not going to dance for it. And so it is that independence of the evaluations made by the different scout bees going to a given site that ensures that the site is represented accurately, on average, to the other nest site scouts.

Amy 44:50
I'm just cracking up over here considering it's election time in our country right now. And so I'm just laughing just at the voting and the democracy and the independence of each honey bee. I won't go further than that. But I think that's really cool.

Guest 2 45:05
Really important point you raise there, Amy, because you have to understand that for the bees in a swarm, they're all in one boat together. They're all going to sink or swim together. So it's very different from our political elections where there are different parties, and they have different interests and one party wins and one party loses. If the swarm doesn't make a good choice, everybody loses, or everybody wins if they make a good choice.

Amy 45:31
That's a great point. So once they do choose a winning site, so once they all decide, this is the place we're going to, how do the bees fly together to get to this new site?

Guest 2 45:42

Yeah, right. Your question says, "Okay, once we've made the decision, how do we implement the decision?" First, it's kind of a two-step process. The first step of implementing or acting on that choice is for the nest site scouts that have sensed the quorum, have sensed that their site has won in the competition, they come back to the swarm, and now they have to signal to all of the other bees in the swarm to warm up their flight vessels to get ready to make the flight. And they tell the other the nonscouts, which is 98% of the bees in the swarm, that it's time to warm up and get ready to take flight by producing these two signals, the worker piping signal, which sounds like this: A bee was walking across the swarm cluster, she'll grab another bee, she'll presser thorax against the other bee, and she'll make this sound. [Tom mimics buzzing noise]

Amy 46:39
Sounds like a cell phone.

Guest 2 46:43
That's a good thing. When we recorded it, we didn't have cell phones. But yeah, that's a very good analogy. That tells that bee that's just been piped that she should warm herself up. And then, it takes about half an hour or an hour for everybody to have their all their thoraces up to the 95 degrees Fahrenheit that is needed for flight. Once these scout bees walking across the swarm surface and burrow in through the swarm cluster, once they sense that everybody's nice and hot, ready for flight, they then stop piping and start making a signal called the buzz run where they scramble across the other bees, buzzing their wings, running across them. That literally breaks up the cluster. And once the cluster has launched into flight, then the scout bees need to steer the swarm to the new home site. And they do that by performing streaker flights, high speed flights through the swarm. Most of the bees in the swarm are just circling around lazily. But the nest site scouts streak through at high speed pointing in the direction of the new home site. And so they, bit-by-bit, they can get everybody moving in the right direction. And then they continue to guide them through these streaking flights because the swarm only flies along at about to about six miles per hour or sometimes a little higher, but a bee can fly much faster than that. So the nest sites streak through the top of the swarm and the other bees, evidently, are looking up against the sky at these streakers and getting the directional guidance from them.

Amy 48:18
That's funny. The bee streakers are probably different than human streakers.

Jamie 48:22
It's funny you say that Amy, because that's exactly, every time I teach this concept and use streaker bees, I'm chuckling in my head the whole time. I'm like, "Yeah, it's not the same for people. These aren't those kind of streakers. These are the direction pointers, as it were."

Guest 2 48:37
I like the fact that people do start thinking about it. I've only seen a human streaker, I think, once. I was struck by the fact that that young man was moving through the mass of humans much faster than everybody else. So that was --

Jamie 48:53
Which caused everybody to look at him and probably, they followed, just like your swarm concept. I don't know. Anyway, so, gosh, there are just so many interesting points here. But I'm going to kind of wind this down and say, we've got a lot of beekeepers who listen to this podcast, and they're listening to it. And they might ask, "Tom, what are some of the practical beekeeping applications that have resulted from your discoveries about swarm biology? What have you discovered about swarm biology that will help beekeepers specifically?" I can think of quite a few things off the top of my head. But I know you will probably reveal those as you answer this question.

Guest 2 49:31
I'll answer that first by building on what I was just talking about, how the bees have to warm themselves up before they can take flight. And they do that by the nest site scouts making the piping signals and then the buzz runs. What I would say to a beekeeper, because you've had a swarm call, you're coming there, you're rushing there, you want to know whether you have to really work quickly or slowly. What I do, and I encourage beekeepers do this, take along a spray bottle of water because if you come to this swarm and you put your ear up next to it and you hear this nest sites scouts piping in there, that tells you that they're close to taking off. They're certainly getting ready to take off. But if you just spray them with water, that cools that cluster right down. It stops them in their preparations. And that gives you time to shake them into your hive. So that's one thing. That's so cool. I didn't know that. And another thing is that it's very hard to stop a colony from swarming once it's on that track to produce a swarm. One thing you can do, and often you don't even know that your colony is preparing to swarm because you're not looking into the hive that frequently, is to put up bait hives. We know now what the bees want in a home site. If you put up bait hives, you're likely to catch many of your swarms. And we can talk a little bit about that. But one thing I want to mention very quickly before we forget to do so is you don't put the bait hives up right next to your apiary. I've never had success capturing swarms near an apiary, and I think it's because the nest site scouts, when they go out and search for a new home site, evidently, they start their searching a few hundred yards away at the closest, at the nearest. So I put up my bait hives at least 100 or 200 yards from my apiary. We can talk about what makes a good bait hive if you'd like.

Jamie 51:24
Yeah, Tom, I know when I listen to you talk and you're talking about the nest cavity, the entrance and all that stuff, we don't need to chase this rabbit necessarily in this particular podcast segment, we need to have you back to talk about it. But it's formed some of the basis for your comments on Darwinian beekeeping, the size of nest, the density of colonies in an apiary, nest sites, and all of that stuff. So there are even some nest modifications that might be more favored by bees than those we currently provide them.

Guest 2 51:54
Yes, now that we know what honey bees want in a home, if we want to be, you might say a kinder and gentler beekeeper, one could help the bees by giving them a home of that design. It won't give you a lot of honey production, but it will give you a healthier colony. This is a big topic but just one of the ways that makes for a healthier colony is that it allows the colony to swarm and that swarming creates a

break in the brood-rearing. And that really helps the colony deal with parasites and pathogens, having a break in that brood-rearing.

Jamie 52:30
Well, Tom, I just want to thank you so much for joining us on this segment of Two Bees in a Podcast. There's so much here. What I would encourage our listeners to do is to check out our show notes. Amy will make a point to link to Honey Bee Democracy, Tom's book about this topic. It goes into great detail. We'll also put some other notes in there, as well, that you can find out more information about this, about Dr. Seeley and his program. Tom, thank you so much for joining us on this episode.

Guest 2 52:56
It's really been my pleasure, Jamie. Thank you for inviting me. And thank you, Amy, for helping make this work.

Jamie 53:01
Everyone, that was Dr. Tom Seeley who's a professor in the Department of Neurobiology and Behavior at Cornell University.

Stump The Chump 53:10
It's everybody's favorite game show, Stump The Chump.

Amy 53:25
Alright, it's that question and answer time. We've got a lot of questions about just, I guess, bees, Jamie. That's all we have questions about.

Jamie 53:32
I would hope so. It's interesting you say that. I have had questions about things completely unrelated to bees just because I'm an entomologist. I get a lot of other insect questions and I have to say, "You know what? I only know things about honey bees, so we probably better stay there."

Amy 53:46
Well, not even insects. You had a question about hummingbirds the other day.

Jamie 53:49
I have had questions about hummingbirds and toenail fungus.

Amy 53:53
Ew, oh my God.

Jamie 53:56
No, I just get a lot of interesting questions sometimes, but that's just part of the job, right?

Amy 54:02

Part of extension. Yep. Gotta have the knowledge just to be dangerous.

Jamie 54:07
I'm even pretty good at making up answers. I'd be a great politician, wouldn't I?

Amy 54:13
Geez. Okay. All right. So before we get in trouble, so the first question we have is from someone named Dave. He emailed us and he said that in one of our podcasts, I know that you have spoken about this, Jamie, that you've referenced at your house you don't really have a good location for making honey due to lack of pollen and nectar. How do people find out about this information in their area? This person is from Southern Illinois.

Jamie 54:36
Yeah, Dave thanks for that question. It's a very relevant question. When I lived in Georgia, which is where I grew up, I kept bees on my grandfather's dairy farm and I made honey all the time. In fact, I thought it was just something that bees do everywhere, and I just assumed that you could put honey bees out just about any place on planet Earth and make honey. Before I moved to Florida, I was told the area where I was going to move was not going to be that good for honey production. In fact, it wouldn't produce any marketable honey at all. And I discovered that that is the truth. And so let me tell you some tricks that I've picked up over the years about how to know if you're moving to a good area. First of all, one of the best things you can do is contact local beekeepers in that area. They will know if it's a good area, they will know if they routinely produce honey, what amount of honey they produce per colony, things like that. You can often find these local beekeepers at local bee clubs. Now, not every county or every space in the United States, or the world, for that matter, has local bee clubs, but there's, at least in the US, there's a reasonable probability that you're within a one to two hour drive of a local bee club. And those beekeepers at those local bee clubs will know a lot about your area. In the US, we're fortunate because we have such a robust County Extension Service. So you can contact your local county extension agents and say, "Hey, are there a lot of important honey producing plants in my area?" Which kind of leads me to that comment as well. You've got to find out what bees in your area make honey from. In my case, there's not much. But just outside of where I live, gallberry and palmetto are very important plants. So I just have to find out what those important honey plants are in my area and see where that's growing in my area. In fact, my wife and I were looking at houses, maybe a year or two ago. We didn't move, we ended up staying where we are. But one of the qualifications for me was, is it going to be close to gallberry and palmetto so that my bees can start making honey? The last point of recommendation that I will give you is, unfortunately, it's trial and error. I don't think moving to an area and keeping bees in that area one year is sufficient to tell you if it's going to be a good area or not. I like to keep bees in an area about two to three years before I write an area off. Now, I've been living where I live now for 13 or 14 years. And I can, I think, I can sufficiently say it's a terrible area. But knowing what I know now, I know local beekeepers, I know the area really well, I know the county faculty, I also know what should be blooming in my area, what bees would use, and if I were to ever move, I can collectively put that knowledge together to pick out better spots from our bees. The good news is, you might be stuck living where you live, but you're not stuck keeping bees where you keep them. You can always put them on your vehicle, your truck or trailer, etc. and move them to honey

flows. So there's lots of ways around being stuck in a honey desert, as it were. You can move bees to where they need to be.

Amy 57:45
Yeah, and a lot of times, too, Jamie, when people are asking abou, how do I find my local beekeepers association or local bee club? Or how do I find my local extension agent or county agent or county state specialist, whoever, it's really as simple as a Google search. You'll basically just Google "honey bee" and whatever county or city or you're in, and hopefully, there will be a list of people that you can contact. So just use Google.

Jamie 58:11
Yeah, I like that point. Everybody contacts me assuming I know everything there is on planet Earth about bees, but about three quarters -- Yeah, maybe I'm overestimating here, but about three-quarters of the questions that I get, I actually have to look up the answer to myself. And so really all the PhD has done for me is it's made it where I know where to look. And sometimes, just Google searching, Amy, sometimes it's just Google searches. Sometimes I want to say, "Hey, just Google it." But I understand. Let's move on. Let's move on to the next question I know nothing about. Let's see.

Amy 58:20
Do you not? The second question is from someone named Nancy, and she said that she has four backyard honey bee hives. The Varroa has been too plentiful this year. She said that one of the four hives consistently has 70 to 100 Varroa. The other hives have a much lower count, and she's wondering if you've ever run into this situation before, and if you can redirect her thinking as to what may be causing the abundance of Varroa in just one hive.

Jamie 59:12
There are actually quite a few things, Amy, that I can offer as potential causes. Thing number one --

Amy 59:16
They also all received the same treatment.

Jamie 59:18
Yeah, I was going to say, so I'll start off the bat saying, number one, biology is messy. So life is messy. We expect these bees that we keep in uniform light boxes in our backyard that have the same exposure to all the plants, all the terrain, all the same climate, rain, all the cold, the heat, etc., we expect them all to behave similarly. But that's not a reasonable expectation. Life is messy. So some things, for whatever reason, have more or less of things and sometimes it's just not explainable. We just have no good hypotheses for why this might be the case. So you've got four colonies, you treat them all similarly, and one colony is peaking not just peaking, far exceeding Varroa population compared to the other three. So some of that could just be a natural variation. Life is messy. Another reason could be that your treatments aren't working as well as you may think they are and that three of the colonies started off with lower Varroa populations, and this one colony's not responding because the treatments aren't working quite as well. It's also possible that you have just enough genetic differences between

those four queens, that that last colony, the one with all the Varroa, simply has a stock in it or genetics in it that just aren't good for Varroa control. They're a susceptible line, a susceptible breed. Perhaps, requeening them will help out. Another thing that a lot of people don't consider, and I don't have enough information in your question to know if this is the case for sure, but sometimes colonies have more Varroa just because they're more bees. Is this your strongest colony? Is this colony two, three or four times stronger than the other colony? If it is, you would expect it to have more Varroa. It might have more Varroa per colony, but not per bee. If the colony is four times stronger than the other three, it might have four times more Varroa just because there's more bees. And so what's the Varroa population on a per bee basis? So right off the bat, I've said life is messy, I've said genetics, I'd say, your treatments might not be working. For sure, if you are getting that number of Varroa in that colony, you need to continue trying to address Varroa. Perhaps with another treatment, perhaps with a second follow-up treatment if you didn't kill Varroa adequately. So there could be lots of things contributing to this. But what I would say is you need to make sure that your treatments are working. And the only way to know that is the moment your treatments are done, you have to sample for Varroa. If you still have high numbers, then they didn't work or they were only marginally effective, then you've got to move on to new treatments.

Amy 1:01:55
Yeah, and I guess what's interesting is to ask how long that hive has been around or how long that colony has been around, right? Because I mean, at what point did they actually start to decline and you lose that that colony?

Jamie 1:02:06
Well, Amy to the point that I was making, life is messy, what if that colony didn't swarm? Maybe the other three swarm. Swarming is the natural break in brood cycle and swarming can reduce Varroa population. So there's just a lot to the biology of that one colony that may have differed throughout the year that the other three colonies didn't experience. But I will confess, when you say you're rolling, when you say you have 70 or 100 mites, I'm assuming you've got that on a sticky border or an alcohol wash or in a powdered sugar shake. All of those would suggest to me that those Varroa need to be addressed a different way, or at least have a subsequent treatment to the one treatment that you've been using.

Amy 1:02:47
All right, so the third question we have is from someone named John, and he says thanks for your content and your approach to podcasting. I love the program. You're welcome, John. Okay, so he has questions about queen excluders. He was saying that a lot of people use them. But he's also heard people swear that they cause bees to die more quickly due to their bees and the wings and their bodies kind of rubbing on the excluder. Is there any truth to this? And then the other question he has is sometimes people call them honey excluders, rather than queen excluders. Has there been research done on this?

Jamie 1:03:23

Amy, I've got some pretty definitive opinions on this particular question. And if I may be political here for just a second, humans are really good at not only advocating for what they like, but trying to destroy what they don't. So to give you an example, our political parties in the United States, if you watch the presidential campaign, and I'm not getting political here, I'm just making some statements about all politics, if you watch, for those of you outside of the US listening to this, and there are lots of you, it's political season when we record this podcast.Of course, by the time you listen to this podcast, it may not be political season. But when our presidential candidates come on the air, I would say three out of every four commercials run pro a particular candidate aren't actually pro a candidate. They're negative, the anti-candidate, and so they spend way more time telling us what's wrong with all the other candidates instead of pro. And the reason I point this out and use as an example is that if you like queen excluders, you're going to come up with every reason that they're great and every alternative, every reason that the alternative is not just bad, but awful, right? And so there are really kind of two camps of individuals out there: people who don't mind using queen excluders, and they're very pro-queen excluders, and they're going to, in my opinion, come up with really fake reasons that the alternative is wrong. And so I'm going to start off the bat saying, I don't care if you're a pro or against queen excluders. This is one of those topics that's 100% opinion. I use queen excluders. I can make as much honey in my queen excluder colonies as people can in their non queen excluder colonies. They are not honey excluders, but the people who don't like them claim that they are. And so my point is, there are pros and cons to using excluders and pros and cons to not using excluders. And frankly, I don't care what you do as a beekeeper. You need to choose the management system that makes the most sense for you. Let me, now, Amy, kind of speak on some of those pros and cons. All right. I like queen excluders because I like to know where my queens are and I like to keep brood out of my honey supers. All right, those are the two principal reasons I use excluders. I keep my bees in single deeps with a medium super on top as their food super. I keep a queen excluder between those two boxes. So I have a deep, an excluder and a medium. That's my standard size format, as it were. And if I want to make honey, I add more supers to the top. Now, some people use double deeps, no excluders, and if you want to keep bees that way, that's fine. Keep bees that way. That's exciting. I'm fine with that. There are some people who use no excluders and use all mediums. I'm fine with that. What I tell people is you need to pick the management style that works best for you because, frankly, the bees don't care. I've seen no evidence that excluders are bad for bees. I've seen no evidence that you make less honey when you use queen excluders than you do when you don't. I've seen no evidence that bees are damaged when they go through queen excluders. So what I would suggest is it almost feels like a smear campaign in politics, right? Let's quit making up stuff and just say, I'm not going to tell you why I hate them or don't hate them. I'm just going to tell you why I prefer to use a certain way. Those individuals who don't like to use excluders, and I'm totally fine with that, they say, the principal reason is just, "I don't like to buy an extra piece of equipment." If you're a commercial beekeeper and you keep 10,000 colonies, that extra $15 per 10,000 colonies is a lot of money. And so they don't mind at all having a little bit of brood in their honey supers. They don't mind at all the fact that the queen has full access to all their hives because they don't manage the queen, per se, they manage the colony So it matters less to them where she is. And for the most part, bees wil sort themselves out. They'll keep brood in the lower box or two, they'll put honey in that next box, which tends to itself be a natural queen excluder, so the queen doesn't move past it into the upper supers. So Amy, you've heard me going on this kind of tangent and chasing a rabbit. Basically, the short answer to the question is it really doesn't

matter which way you use. There are benefits to using both but not really drawbacks to using either so I don't buy into that whole, "It's a honey excluder, it kills bees," thing. I just don't see that. If you don't want to use them, so be it. But don't perpetuate these myths about it.

Amy 1:08:24
Sure. And of course, you even have the argument of like the plastic queen excluders versus the metal.

Jamie 1:08:28
Yeah, exactly. And Amy, when I started keeping bees, I'm old school, I love the wooden bound queen excluder. So that's the metal excluder with the wooden rim around. I like it just because it's just the way I kept bees. My beef with it, I actually have two beefs with the wooden bound queen excluders, but number one is that when I use the wooden bound queen excluder, bee space is violated. So they will tend to put a lot of burr comb between the excluder and the supers on either side of it. And I just kind of quit liking that. My other beef about it is the wooden frame part only lasts a couple of years, and so it won't be very long before they break and crack and split and the rim comes up. So I prefer to use the metal bound excluders. I know that a lot of people prefer the plastic excluders because they will rust and things like that. They just kind of warp a little too much for me. And again, I don't care what people choose in that regard. All three excluder types, the wooden bound, the metal, and the plastic, all of them seem to keep the queen in the bottom box, and not in the uppermost boxes. So we all do different things for different reasons, but I don't think there are any drawbacks to using them or not using them that actually affect the bottom line. It's truly personal preference and management style.

Amy 1:09:53
Great. We should write like a fact sheet on all the things that really don't matter.

Jamie 1:09:59
Yeah. Amy, I could go on for days, but people try to win me over to eight-frame equipment or 10-frame equipment, they try to win me over to using exclusively mediums or exclusively shallows. There are some things that really matter to me. Some of these, I won't name them, but some of these newer or or alternative hive styles, we'll call them these hive styles that are --

Amy 1:10:26
Now we're gonna get questions on this.

Jamie 1:10:28
Yeah, I know. For commercial beekeeping purposes, I'm a fan of the standard Langstroth hive. I'm not against top bar hives or Warre highs or Flow Hives, I think those those hives all have their purpose. But when it comes to large-scale management, it's hard to beat the Langstroth-style hive. With that said, I don't care if it's eight or 10 frames, I don't care if excluders or not, I don't care if it's migratory lids or telescoping lids, these things are just personal preference. But there are very few management styles that truly matter. And those will be questions for another day, I'm sure.

Amy 1:11:09

Yeah, well, and actually, we do have a podcast segment that you and I did about equipment. So, I would highly recommend that everyone kind of go back and listen to some of the old segments that we have. And honestly, we would love to hear which segments are your favorite? Which ones are your least favorite? You're not going to offend us. But, just moving forward for 2021, different episodes, and you all have been great about commenting on what you would like to see in the future. So we really appreciate that.

Jamie 1:11:38
Yeah, thanks, everyone. Keep those questions coming. And I'll do my best to try to answer them as calmly as possible.

Amy 1:11:44
Yeah, and then tell them all what beef you have with them.

Jamie 1:11:46
That's right. Enjoy.

Amy 1:11:58
Hey, everyone, thanks for listening. Today, we'd like to give an extra special thank you to our podcast coordinator Lauren Goldstein and to our audio engineer James Weaver. Without their hard work, Two Bees in a Podcast would not be possible.

Jamie 1:12:13
For more information and additional resources for today's episode, don't forget to visit the UF/IFAS Honey Bee Research Extension Laboratory's website ufhoneybee.com Do you have questions you want answered on air? If so, email them to honeybee@ifas.ufl.edu or message us on Twitter, Instagram or Facebook @UFhoneybeelab. While there don't forget to follow us. Thank you for listening to Two Bees in a Podcast!