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SPEAKERS

Jamie, Guest, Stump The Chump, Honey Bee, Amy

Jamie 00:05
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. In today's episode of Two Bees in a Podcast, we will be talking with Brooke Moffis, who is a County Extension Agent in Lake County, Florida. She's a specialist in landscaping for honey bees. So it doesn't matter where you are on planet Earth, you're going to want to listen to this because Brooke will give us some pointers on how to develop a landscape, including flowers and design that are appropriate for the honey bees that we know and love. Following that, Amy and I will be spending some time talking about beekeeping equipment, just some of our opinions about how to use certain types of equipment, what types are better or worse and pros and cons. You'll want to look forward to hearing that. And then finally, we will conclude this podcast with everyone's favorite Stump the Chump, our question and answer series. Brooke, it is fantastic to have you with us because you're going to be talking about gardening for bees.

Guest 01:34
Absolutely. Thank you for having me on today.

Jamie 01:36
Yeah, it's our pleasure.

Amy 01:38
I'm so excited. Brooke is actually, she was one of my mentors when I was in Orange County. So everything I know, I learned from Brooke.

Jamie 01:44

So you guys have a history. So Brooke, is there some stuff I can ask you about Amy, because I'm sure you know.

Guest 01:49
Absolutely, but we'll have to do it off the air.

Jamie 01:52
Oh gosh, I should have spoken to you before she joined the team here at UF.

Amy 01:57
Hey, now, hey, now, there's enough roasting of Amy. Okay, so let's get to the actual topic. So Brooke, I guess my question for you is why should the average homeowner care about landscaping for bees and other wildlife? I know that I am a little biased. And I love landscaping for bees and wildlife. But why should we care? I mean, why should anyone care about landscaping?

Guest 02:20
Well, I'll tell you kind of how I got started into gardening. I've been a gardener since I was a teenager. I was exposed to gardening through my grandfathers. And I think one of the reasons I enjoy gardening so much is that it is time for me to commune with nature. I really think that it is a time for me to press stop on the worries of daily life and just really take in the beauty of the natural world. I've always been fascinated by insects because they're so tiny, and they can be so complex. Honey bees are a really big part of this fascination because they're such social creatures. And when I commune with nature, I love to pay attention to these tiny little fascinating creatures. So I think honey bees and insects in general have a special place in my heart. But one of the reasons that it's important for really everyone to care about landscaping for bees and other wildlife too, is that, at least here in Florida as an example, the urban landscape is one of our largest expanding land uses. And I'm sure it is in many places in the world. Then, when we have this mass expansion of urban landscapes, what we're losing is our woodlands, our pastures, and they're turning into urban yards. So when this happens, wildlife can be displaced and it can be displaced greatly. But there's really a lot we can do in our home yards and in the urban landscape to provide for honey bees and other wildlife.

Jamie 03:54
Yeah, I think that that's like a great testimony. Honestly, I've been keeping bees since I was 12. That's now 30 years ago. But, landscaping for bees wasn't a big deal when I got into beekeeping. However, when I was hired at the University of Florida and bee populations started declining, and by the way, there's no correlation between the two of those, this idea of landscaping for bees just exploded. So a lot of emails and a lot of phone calls that I was starting to get, What can I plant to help my bees? From there, a lot of people are getting funded to study this, there's a lot of research projects on what you can plant in your home landscape to look at this, so it's exciting that you're embracing that and you're working with your clients here in Florida to discuss that. So let me ask you a question. What are some of the barriers the public may encounter when landscaping for honey bees and other wildlife? I have a sneaky suspicion I know some of those, but I'd love for you to share what you've learned about that.

Guest 04:53

Sure. So I think part of the public perception is simply that people think when you're gardening for wildlife or honey bees, that the landscape is going to look messy and unkempt. But, there are things that you can do to help the landscape fit into those social norms. I think, sometimes, you could have, if you're -- landscaping for honey bees is a little bit easier, I think, to fit in some of those homeowners association covenants or property owner association covenants than maybe wildlife in general. So, sometimes those HOA covenants could be something to work around. But if you can educate your HOA board, or your property owner association board, then that can help too, if you live in an area where you have those types of restrictions. I think another thing could be plant availability. So sometimes, our native wildflowers, which can be really great for attracting honey bees, can be hard to find at the big box stores, the typical retail garden center. But there are non-natives too, which can provide good pollen sources as well. But I think plant availability can be some of that. And then also, I think, we also have to get away from the mindset of reaching for the pesticide bottle too. So you don't want to use pesticides or you want to greatly limit your use of pesticides by doing things like choosing soaps and oils that don't have a long residual period. Then, you also don't want to apply when bees are actively foraging, which is typically in the hot sunny time of the day. So if any spraying needs to take place, you need to do so early in the morning, or late in the evening. Another really important thing to do if you're going to apply pesticides is make sure you avoid dust formulations because they can be picked up on the hairs, very easily, of honey bees and some of our other bees species as well. So again, the public perception that it's going to look messy, we can get away from that, plant availability, finding some of those native species or some of those hard to find non-natives. And then again, limiting your use of pesticides or getting away from them altogether.

Jamie 07:06
Brooke, those are great comments. One of the things that I think about, too, when I think about this particular question is, in my workings with not necessarily homeowners but companies or offices that want to provide landscaping around their business or industry, etc., there's a little bit of fear that if you're planting these things, and you're attracting bees, how dangerous is that, right? Everybody loves the idea of planting pollinator gardens if it means you're going to have a lot of butterflies because butterflies can't flap you to death, but people concern themselves. If I put all these plants--

Amy 07:39
Did you just say flap you to death?

Jamie 07:40
How else is a butterfly going to kill you, Amy? I don't know what to say. But, they're like, Am I going to have bees in my backyard? We're talking about landscape, we can have another podcast about actually putting out nesting habitat, and then you will have bees nesting in the yard. So I think some fears associated with bees, and I would argue, Brooke, unwarranted fears. Because when bees are out there on these flowers, they're just collecting nectar or pollen, they're not out to bother you. So it's neat that you can promote this idea of landscaping for bees and actually purposely wanting them to come into your yard.

Amy 08:13

Yeah, it kind of feels like a little success. When you plant something to attract pollinators and you see that honey bee land on your flower, it feels like a success. Who wouldn't want to have that?

Guest 08:26
It does. It does feel like a success. And I'm so glad you mentioned that, Jamie, about the fear of being stung by a bee or honey bee because I do hear that often. But, if you're not aggravating them, if you're not near the hive or they're not trapped, the likelihood of you being stung is very, very minimal. And you may want to chime in on that even further. Right. Absolutely.

Jamie 08:48
No, I agree completely with you. I personally have landscaped for bees a little bit in my yard, and I've never been stung by my bees on my flowers. It's just not one of those things that's very common. It can happen, right? If you're out there grabbing flowers and cutting fresh flowers to bring inside, there's a risk, but I still say the risk is minimal versus the joy you get from seeing this diversity of not just honey bees, but diversity of bees that will come to your yard.

Amy 08:51
Brooke, I have a question for you. So when we're talking about landscaping, it seems like it's pretty intense, just everything that we need to think about and all the barriers when it comes to landscaping for honey bees. So what are your suggestions for steps that homeowners might be able to take to provide a bee habitat for them?

Guest 09:34
It really can be very, very simple. Okay, in the most simple terms, grow more flowers. Grow them in varying heights, varying widths, different varieties of flowers, that can help. Plant these flowers in sunny locations, group these plants together, and one of the reasons you want to group them together is so bees actually use less energy searching for plants. Another thing that I think is really interesting is when we think of pollinator plants, what color comes to your mind, typically, or to most gardeners?

Amy 10:08
I have like three colors in my mind right now.

Jamie 10:11
Of course you do, Amy. I was going to say yellow, was I right?

Guest 10:17
Yeah, yellow is a great one for honey bees. But a lot of people-

Jamie 10:20
That means I'm wrong. You're answering it means that I failed.

Amy 10:25
I was thinking red.

Guest 10:27
Okay, so red is one of the ones that I was kind of thinking of that the typical person thinks of, but yellow is another good one.

Amy 10:34
You're weird, Jamie.

Jamie 10:35
Thanks for reinforcing it. Don't worry, Jamie. You're okay, too.

Guest 10:40
But a lot of pollinators can see red, honey bees really don't see red or it's not that attractive to them. So honey bees prefer what Jamie had mentioned, the yellows. They prefer white, blue, and purple flowers. So think about that when you're selecting your flowers. Those are colors that they're more attracted to, and they're attracted to flowers that are on that side of the UV spectrum, the light spectrum towards the UV side. So again, your white, your blues, your purples. Another thing you can do is you can plant umbel and daisy-shaped flowers. So if you haven't heard the term umbel before, when I hear the term umbel, I think of the word umbrella. So think of flowers that provide the shape. So umbel-shaped flowers are things like -- some people may be familiar with this species, Queen Anne's lace. That's something that I was very familiar with growing up in Georgia and in the Tennessee area. It grew native all along the pastures. But what this flower does is it forms into a large cluster. So it's tons of tiny little flowers that make up this large cluster, and it offers a platform for the bees to land on. So you want to think of flowers that kind of form an umbrella shape. Other ones can be dill and parsley, and some of those herb-type plants. So then, the daisy-type flowers, you can get into things that are commonly grown throughout the world like Black-eyed Susans, and then we have something called blanket flower here in Florida. Purple coneflowers as well.

Amy 12:17
Oooo, we love that.

Guest 12:19
Yeah, so those are some suggestions. Plant a lot of flowers, plant in a sunny location and think of those colors: yellows, white, blue, purple.

Jamie 12:29
I think that's cool. But Brooke, I think the coolest thing you've said so far is you grew up in Georgia. Where in Georgia are you from?

Guest 12:35
I am from Douglasville, Georgia, which is on the west side of Atlanta. So what's really funny is I started doing all of this distance education over the past few weeks because we have to in this situation, and I had no idea that I still had a very strong southern accent.

Jamie 12:53

It's funny, someone, the other day when I was giving an online presentation with Zoom, and I know we're chasing rabbits, but our podcasts listeners know we do that, I was giving a group talk to some place, I think Philadelphia, I forget, but it was using Zoom and someone in the chat box said, "Are you the person who does the voiceover for Peyton Manning in his commercials?" So apparently, they were saying that I also have a southern accent.

Amy 13:19
Jamie, I like how out of all of that that Brooke just told us, all these fabulous tips, you're like, "You're from Georgia? Me too."

Jamie 13:26
Well, I'm from Georgia as well. Anytime someone is from Georgia -- I was gonna say, Brooke, you're doing so good in your interview. I was like I'd listen to you forever. But now I know why, because you're from the greatest state.

Guest 13:35
We've got that connection.

Jamie 13:38
Let me continue to make the Floridians and the others who aren't lucky enough to be Georgians happy. Alright, so, any tips you can offer to make a landscape for honey bees fit into a more traditional landscape?

Guest 13:54
Okay. So this is if you live in some place that has a property owners association or homeowners association where they may just have a --- how am I going to put this -- a highly maintained expectation for the landscape. So these are things you can do if you live in one of those high maintenance areas. You can plant your like flowers together and plant them in mass. This not only helps your landscape appear more tidy, but it can help insects locate the food source. Another landscape tip that I think is really, really cool, but I don't know that the honey bees care so much about it is planting in odd numbers versus even numbers.

Amy 14:35
I was about to ask how many is in mass? Like how many would you say? 3, 5, 7?

Guest 14:41
Okay, so it all depends. All right. So the one reason we say plant odd numbers and not even numbers is because with odd numbers, if you look at the palm of your hand, your eye wants to rest on your middle finger. So your eye in the landscape wants to rest on something in the middle, and if you have four, it doesn't know where to rest. So this is just a basic landscape design tip. So if you have a tall, large, or an interesting plant, for example, here we have something called a weeping yaupon holly, which can provide flower resources and berries. But anyhow, it may be harder to find in other areas of the world. But anyway, it's got a very interesting habit. So we're only going to plant one of those. Medium-sized shrubs, you're going to plant in threes, fives, or sevens. And then, you want to pick

medium-sized shrubs that flowers heavily for those honey bees, and then wildflowers and perennials, plant fives, sevens, nines or more and kind of try to group them together. Now, another thing that can help if you're in a deed restricted community, or just an area where it's a highly maintained landscape is to have well-defined beds and use mulch in those well-defined beds. And I think that's one of those things, it's like a social norm. For instance, in my home landscape, I have a turf grass that blends in with a wildflower species and my neighbors don't really complain about it because my beds, I think, are really well-defined and my landscape is nicely maintained. So it seems to be okay in my neighborhood. And if it's not okay, they're not telling me about it. So I'm okay, right?

Amy 16:29
You're just kind of like hiding it and defining different areas of your yard.

Guest 16:32
Yeah, you're almost like highlighting different areas and pulling the eye away. So anyhow, you can also design your beds. And I think this works really well when you're working with wildflowers and those types of things that can have that appearance of being messy, or at least that perception of being messy. But if you design your beds in a natural, flowing design, think about the path of a stream or maybe a woodland hiking trail, and you do like these kind of large curves, you're avoiding strong geometry. I think a bee habitat or other type of pollinator habitat could look really messy and really weird if you put it in a landscape where you have a lot of strong geometry because it looks formal. And then you have these plants that kind of have an informal naturalistic look. Now, could it work? Yeah, somebody with a really keen eye for design could probably make that work. But I think the typical homeowner, if they're going to grow these types of plants, and they want to grow wildflowers in mass, need to stick to naturalistic flowing beds.

Jamie 17:38
So this is fascinating to me. I totally want you to come design my landscape.

Guest 17:44
Thank you.

Jamie 17:45
I love that term, strong geometry. I feel like that'd be a great --

Amy 17:49
So funny. I'm like imagining, I'm looking at the palm of my hand right now, as you're talking about it, and I was thinking, like, Jamie's probably looking at his pinky finger, not his middle finger but that's okay.

Jamie 17:59
I took my socks off to see if it worked with my feet too. My eyes are drawn the big toe.

Amy 18:06
Okay, so we've already talked about landscaping and people with bigger yards and landscapes and HOAs, things like that. But I'm wondering about residents who live with either an apartment that have

small lots or patios, or you know, they might not have any space at all. Is it still possible to attract bees? And how would we do that?

Guest 18:25
Oh, absolutely. I think we're gonna have to do this for wildlife and for pollinators and honey bees. And I actually heard Jaret Daniels who's with the University of Florida, and he works with our Butterfly Museum, I was fortunate enough to hear him speak about attracting pollinators to the landscape. And he was saying 80% of US citizens live in cities, and so we need to come up with ways to attract wildlife, even in our city type situations. That can be easy to do with tiny bees and small pollinators, right? So, a small patio or a small lot, even if you start small and you just increase your diversity of plant material, you're going to increase your diversity of pollinators. It's one of those things, if you build it, they will come. So, you can always start small by just doing some container gardens or a small landscape bed if you're in a small lot, and just plant honey bee and butterfly plants. And I think it's really important to note that even the smallest garden has a role to play. Especially if we all do it collectively. Right?

Amy 19:34
I've actually -- I don't know if this is true or not, but I heard that honey bees and other pollinators actually have more nectar and pollen resources in urban areas because of interest in bringing pollinators, even when it's a concrete jungle. They're able to have flowering plants that are actually available and closer to them in bigger areas. I don't know if it's true or not or if I just totally made that up. That could have been it too.

Jamie 20:02
Amy, one of the -- I don't know if it's a wive's tale or not -- but one of the tales that you often hear is that you will hear that honey bees in cities will make more honey, not necessarily, but maybe than agricultural areas, etc., because of the diversity of flowering plants. And again, when I lived in Georgia, some Atlanta beekeepers made that claim. I've met with some beekeepers up in New York City who make similar claims. Maybe there's some truth to that. But I know, Brooke, you're absolutely right. Every one of us has a role we can play because we all have something we can do, even if it's put flowering plants that are attractive to bees in a pot. So that leads me kind of to the next question. So what plants attract honey bees?

Guest 20:44
Okay. Well, again, quite simply, you can just grow more flowering plants and a huge diversity of flowers. Plant native wildflowers to your area too. Think of Daisy-shaped flowers, again, those purple coneflowers. We have something in Florida called a blanket flower, Black-eyed Susans grow all over the place. So those are some of those Daisy-shaped flowers. And then, of course, lots of fruit trees and vegetables as well. We've got to have those pollinators to pollinate our vegetables and our fruit trees. So peaches, cucurbits, like squash and cucumber, they'll go to those types of flowers as well. And then again, those umbel flowers, the dill, the parsley, the fennel. Another thing that I have noticed, and I'm not sure -- I have to be honest, I'm not sure the research on this -- but I have noticed that flowers that have a short throat, like a snapdragon, I noticed a lot of honey bees going to things like snapdragons, and some of those flowers that have a throat. Then, also, a lot of your herbs, which is really, really nice, like basil, rosemary and lavender. Those are grown throughout the world, and they not only provide for

pollinators, but they provide for us as well. You can spice up a dish or add some flavor to a dish with the leaves. So I really enjoy growing those types of plants. So, actually, at our Discovery Gardens, which is our UF IFAS Extension Office demonstration garden here in Lake County, we are growing an edible landscape. So everything's either going to be edible, or it's going to be a plant that attracts pollinators. So there will be some type of use for every single plant in that landscape. So I'm really excited. We just broke ground on this garden. And anyway, it's gonna be a lot of fun.

Jamie 22:32
Brooke, I was going to say, I've always loved the idea of edible landscapes. A lot of people don't think about it. But even shrubs can be, like here in the southeastern US, we've got blueberries that can make good hedgerows if you cultivate them appropriately. So this idea that everything that you can plant can have a table function, as it were, and still be beneficial for bees is a really neat concept, I think.

Guest 22:57
Oh, definitely, definitely. Not every plant we'll have out there will be edible, but at least it will serve the purpose of attracting pollinators if it's not edible, so that we can help get those species pollinated.

Jamie 23:09
Absolutely. I'll make a couple of comments here with regard to gardening for pollinators. So I travel quite a bit and I'm in Europe a fair amount, maybe a few times every year. And one of the cool thing is, of course, the Europeans, especially the British, take gardening very seriously, I did a sabbatical in Germany a few years ago and spent six months there. The Germans were very similar in this regard. They just have such nice, pristine yards. They use the word garden to describe a yard. We use the word yard, they use the word garden. You go into their gardens, and there's just flowers everywhere. They're stratified, they flow, like you mentioned, there's also usually a diversity of colors. And oftentimes, when I think gardening here at my own home, I kind of take a lot of inspiration from what I've seen a lot overseas. When we specifically, now, kind of segueing into this this little last thing I'll mention, when we talk about plants that attract honey bees, what I will tell beekeepers, and even what I've done in my own yard, is ask yourself what are the major nectar and pollen plants that honey bees use in your area? And then consider putting them in your yard. Not only will that attract honey bees to your yard, but it will also let you know when those things are in bloom in your area. To give you an example, our yard does not have saw palmetto and gallberry. For the rest of the world, those of you listening, those are very important honey plants in North Central Florida. So what I did is I put gallberry and saw palmetto in my yard, and now, when I see them in bloom in my yard or budding in my yard, I can anticipate the coming nectar flow. So, what do your bees make honey on in your area? Plant those things in your yard, not because you believe that they're going to use that one or two or three shrubs or trees in your yard to make a whole hive full of honey, but just so that you can use it to see when it comes into bloom, when bees are going into it, and things like that.

Guest 25:02
Yeah, I think that's a very good point to make, Jamie. And what was funny that you mentioned the saw palmetto and the gallberry, I actually had that on a list of Florida plants for honey bees. One of my favorite honeys is actually gallberry honey.

Jamie 25:15
Gallberry is divine.

Guest 25:16
Isn't it? And it's hard to find.

Jamie 25:18
It is increasingly harder to find. But, around the world, people have similar plants. Everywhere I travel, you want to see honey bees on certain plants. I'm like, hey, guys, this would be great in your landscape. It's beautiful, it's native, it'll grow well under the conditions that you have here. And I think, Brooke, all of your recommendations are so insightful. It seems clear to me that you've actually been doing this for a while. I mean, the only way this could be better is if you told me you went to the University of Georgia.

Guest 25:42
I did not.

Jamie 25:44
Don't let me down. If you didn't, just don't tell me you didn't.

Guest 25:47
Okay, gotcha.

Amy 25:50
The best part of having Brooke on this is that she's a county agent, and you know, really everywhere around the nation, here in the US, people should be able to find their local extension agent. Even if their agent doesn't really understand -- well, not even understand -- but doesn't know the answer to some of their questions, they have available resources to back them up and they know people. So, thank you so much, Brooke.

Guest 26:15
Oh, you're welcome. Thanks for having me. It's been a lot of fun.

Jamie 26:18
Yeah, it's been great to have you. I mean, you did such a good job. I'm like wondering what other topics we can talk to you about in the future. So Brooke, thank you for joining us.

Guest 26:24
Oh, you're welcome. Have a great rest of the day.

Jamie 26:27
Absolutely. Guys, that was Brooke Moffis. She joined us on Two Bees in a Podcast. She's a commercial horticulture and Florida friendly landscaping agent for the UF IFAS extension office in Lake County, Florida. Thank you for joining us for this segment of Two Bees in a Podcast.

Honey Bee 26:42
Have questions or comments? Don't forget to like and follow us on Facebook, Instagram, and Twitter @UFhoneybeelab.

Amy 26:56
In this segment of the podcast, we are going to be talking about equipment. We have been receiving a lot of questions about equipment and things that are better than others. So I'm going to interview Jamie today, and he's gonna let us know what he thinks about some of the equipment things and whether purple hives are better than black hives are better than white hives. I'm not sure.

Jamie 27:16
White hives. That's the way to go.

Amy 27:19
That's fair, with little swirlies and spirals and smiley faces painted on them.

Jamie 27:24
That's all outside of my wheelhouse though, Amy. I hope the questions are straightforward, more straightforward than that.

Amy 27:30
So we actually have a listener, he lives in Orlando, in the area and his name is Bob Porter. Just give a little shout out. And he sent us an email with really great questions with equipment. So we figured we'd just do a segment on this and see if we can answer some of his questions. Hopefully, listeners will listen in and if they have other questions, they can feel free to email us and ask us on Facebook. What do you think?

Jamie 27:51
All right, this basically is an expanded Q&A to focus on only one topic, beekeeping equipment, which is why we've made it a segment rather than just part of our Stump the Trump -- Stump the Trump -- that just seems so appropriate these days, and I'm not making a political statement, but it's hard to say "ump" without saying "tr." Right?

Amy 27:59
That was pretty good. We're gonna keep that.

Jamie 28:13
Chump the -- my wife laughs at me all the time.

Amy 28:16
Stump the Chump.

Jamie 28:18

Why can't I do this? Okay, that's why I'm the chump.

Amy 28:26
Let's talk about equipment, Jamie.

Jamie 28:27
Rescue me before it's too late, please.

Amy 28:29
That's fair. Okay, so when you're selecting woodenware, what do you look for? Is traditional pine better than cypress or cedar or are there synthetic hive bodies?

Jamie 28:38
Yeah, okay, so there's a lot of information. So historically, beekeeping equipment has been made from pine, some sort of pine. Pine is a perfectly fine wood. I'm not knocking it at all. It's standard. It weathers storms pretty well. There are other woods that have been used for beekeeping equipment. I have seen some cedar. Where I'm from, there's a lot of cypress groves. Cypress is a very common wood to be used in woodenware. So let's just talk about the woods first, and I'll get into some of these other materials. First of all, I have personally always favored cypress, and I'm not trying to give endorsements or shoutouts here but the issue is that cypress is naturally a wot rot -- I'm struggling today. It's because I'm in my closet. But cypress is historically a pest and rot-resistant wood. Now, a lot of people I mentioned that to point out to me that that is true of old growth cypress and not necessarily the younger cypress that's out there. A lot of the cypress that's being sold in beekeeping as beekeeping equipment is some of the younger growth, but nevertheless, I still prefer cypress to pine, but I will regularly use pine. I'll use cedar, cedar tends to be a little bit more. So generally speaking, the type of the wood is a little less important than how you prepare it. And what I tell people is it's really protecting that wood that's going to ensure the longevity of that woodenware. So let me give you an example. When I put together hive boxes or hive bodies or supers, etc., I never use nails. I always use screws. Screws are better fasteners. I always use wood glue at the joints. I also always caulk the joints once I've assembled the box. So I'll caulk the joints on the outside, I'll caulk the joints on the top of the box and the bottom of the box, and then I paint it with multiple layers of paint. So all of these can extend the life of even a pine box for some length of time. There was always a question about whether or not you should treat with wood preservatives. The copper naphthenate is really the only one that's recommended for use in beekeeping equipment these days. I personally do not treat my woodenware. I have some data that suggests that there might be some impacts of that stuff on bees. But nevertheless, I'm pretty convinced that if you keep it painted, keep the corners caulked and put everything together with wood glue, that it'll have a long life. Now, you asked also, Amy, about these other types of materials that are used to build beekeeping equipment. The common ones are a hard plastic or polystyrene. And so just very quickly about those, the plastic boxes are great, they don't rot, they tend to last into perpetuity if you take care of them, right? But the catch with both those and the polystyrene boxes is that they hold moisture. So as bees consume honey, as they live in their boxes, they produce a lot of moisture, and that stuff can collect on the walls of the boxes and rain down on them. So they don't, quote, breathe quite as well. But both materials are very sturdy and can last a very long time and are an important part of a lot of beekeepers' operations. They tend to like those rather than even using wood.

Amy 32:01
So what about the different grades of wood? I mean, does it matter if you're going to pay more for fancy wood at all?

Jamie 32:07
Yeah, essentially, Amy, the big deal about the grades of wood are really boiled down to how many knots and splits are in the wood when you purchase it. So the highest grade, the best wood, has no knots or splits in it. And a lot of people tend to prefer that. But I will tell you that when they are in the second tier or third tier type woods, and they contain knots or splits, those are almost always in areas that aren't the joints. In other words, areas that don't really matter a lot. When they're making those boxes, they'll cut around those things and not include them in the delicate places. So buying that second or third tier of wood is a good way to save on equipment costs. But I will tell you, it might take a little bit of extra protection. There might be cracks that you need to fill in with wood putty, as an example. And you'll want to make sure that you caulk and paint and all that stuff. So, I worry less about the grade of the wood and typically, will accept second, maybe even third tier wood just to save on costs, especially if I was buying thousands of boxes to assemble.

Amy 33:13
Yeah. So you're talking about painting, and so one of his questions is actually whether it's worthwhile to wax coat and paint or just paint versus staining. So is there something that you recommend for that?

Jamie 33:25
Yeah, this wax coating thing has become very popular. For our listeners, what that means is beekeepers will melt you know a large vat of beeswax and they'll quickly dip their boxes in those, either before or after --

Amy 33:38
Oh yeah, I've seen that, I think.

Jamie 33:38
Or they'll paint it on the walls, the idea that that natural beeswax gives it that added layer of protection. I have never done that. I've never personally dipped my boxes in wax and I've always had boxes last a very long time and I'm just a firm believer in gluing, caulking and painting and that seems to last a while. But the wax thing is intriguing to me. I think it cannot hurt. But I hesitate to recommend dipping with wood preservative, the copper naphthenate that I mentioned earlier. Remember, I will tell you, not all wood stains are for use with bees. So you really need to make sure you're using stains that are acceptable.

Amy 34:23
Okay, so what I want to do, because Bob's questions are, he talks about the woodenware, then he talks about covers, then screened bottom boards, so let's go with the screened bottom boards next.

Jamie 34:32

Sure thing.

Amy 34:33
So what are the advantages of using a screened bottom board versus a solid or traditional bottom board?

Jamie 34:40
So that's a great question. When I was an undergraduate student at the University of Georgia, screened bottom boards were just coming out and being studied. So what are they? Essentially, your hive has to rest on something. It's either going to be resting on a solid bottom board, which is basically a solid piece of wood or multiple pieces of wood put together to make a solid surface, or it's going to be resting on a screened bottom board. A screened bottom board is a bottom board that, instead of wood, has screen. Those became popular because some scientists at the time had hypothesized that, perhaps, as bees groomed themselves during the day, Varroa would fall off of them through the mesh into the ground, not able to return back to the bees in the hive. And so the idea is that maybe it lowered Varroa populations. So there was some research done a decade, now, 15 years, I guess, ago. And what they showed is that colonies that have screened bottom boards actually have lower Varroa populations. Now, I don't believe that it is thought that that is due to grooming behavior any longer. I think that they have other reasons for believing that Varroa populations are lower in colonies with screened bottom boards, but nevertheless, they are lower in colonies that have screened bottom boards. I think a review of the literature that was conducted about 10 years ago showed that colonies with screened bottom boards have some somewhere between 10 and 15% fewer Varroa than colonies with solid bottom boards. Well, the thing is it's not like a huge flip of the switch. You get some Varroa control, but not complete. But it may mean the difference between you having to treat three times this year and only having to treat twice. Maybe that reduction in 10 to 15% is enough to limit your treatment, or maybe it amplifies the impact of other treatments. There are some other touted benefits there. It's been shown that colonies might have more brood or more bees, but I think it's really negligible changes and that the real issue is that it was supposed to impact Varroa populations.

Amy 36:48
That's so crazy. I thought that it was, honestly, I thought it was because of temperature and humidity.

Jamie 36:53
Yeah, a lot of people think it's ventilation, but it really was born out of Varroa control. And the thing is, Amy,even if it's only a negligible or a minor impact overall, but not a negative impact on the colony, then why wouldn't you use it? The idea here that I always tell people is there's no negative impacts associated with use it. And we know that there's a few minor positive impacts, so why not use them? A lot of commercial beekeepers have been a little reluctant to embrace them because it would have required modifying the pallets their colonies sit on and things like that. But at the end of the day, screened bottom boards are really useful for a lot of hobbyists. And one last point about them before we move on to the lid question that you have for me, is a lot of people get concerned that using screened bottom boards in colder climates is a problem because they're concerned that it's going to be an issue for bees trying to keep their nests warm. So if that is the case with you, you can still use screen bottoms. But when winter approaches, you can just slide a piece of wood under the hive during

winter to essentially close off that screen bottom board. I even know people who -- you know those plastic cardboard signs that people, those political signs that you see posted, it's made out of plastic, but it's made to look like cardboard? A lot of people cut those to slide into the entrance of a hive to cover that screened bottom board during the winter. I personally don't do that. I didn't do it when I lived in Georgia and the nighttime temperatures would get --

Amy 38:26
Well, that's not North, Jamie.

Jamie 38:28
I know. That's why I said the word Georgia. We're going to give everybody living north of Georgia the okay to slide something in the hive to close off those screen bottoms. Just make sure when you do it, you don't close the hive entrance.

Amy 38:39
Yeah, and typically, the screened bottom boards, when you purchase them, I think they come with a little sliding bottom cardboard, usually, for Varroa.

Jamie 38:47
A lot of those do. A lot of those do. If you're worried, you can close those off during winter. I personally don't worry, but I also live in Florida.

Amy 38:54
That's fair. Okay, so what about covers? What about the different covers? Tell us about those and is there any type of cover that you think has an advantage over another?

Jamie 39:05
I mean, there there are two main types of covers. The first of those is called telescoping covers. The other is a migratory cover, migratory lid. Cover or lid are both interchangeably used. So a telescoping cover is the traditional cover and it's usually a wooden cover that's kind of a metal sheet that goes around the top of it. You put it on top of the hive and it goes past the edges of the super and down the walls of the super just a little bit. It's telescoping, right? The problem with telescoping covers is that they tend to be more expensive than migratory covers, and I'll tell you why in a moment, but they also require a second cover which is called an inner cover. And the reason for that is that telescoping cover comes off of the edges of the boxes and down the sides. And so as a result, if you only use a telescoping cover, the bees might glue the frames and the uppermost box to that cover and you can't put your hive tool in there to pop those frames loose when you're trying to take off the telescoping cover. So when you use a telescoping cover, you have to also use an inner cover. So long story short, it requires you to buy two pieces of equipment. I will tell you, I like the old-fashioned way of beekeeping. I use telescoping covers because I think they're just cool and make a hive look better. But for a lot of commercial beekeepers, they're not very practical. Number one, they tend to be more expensive. Number two, the migratory lids that they use, I'll tell you about in a moment, have a provision to feed bees through the migratory lid. And number three, the telescoping lids, if you think about them, if they're going over the edges of the boxes and down the walls just a hair, you can't stack hives side by side on

a trailer because there's the gap between the hives created by the two telescoping lids touching one another. So they prefer to use migratory covers because it's a single piece of equipment, doesn't usually require construction because it's just a rectangle that fits flush on the uppermost box, so it's cheaper, you can stack boxes side by side because the lids don't telescope, and also, many of them, most of them, in fact, have a hole in the middle to accommodate a feeder jar. So people who use the telescoping and inner covers typically do it just because that's what's in the starter kits. It's the old-school way of doing things. They're pretty. They also are heavier so they tend to stay on colonies in storms. But the real benefit goes to migratory covers because they're just practical. They're cheap, easy to feed through, and you can stack boxes close together. At the end of the day, though, Amy, I'll tell you, we've talked about what to make your boxes out of, we talked about bottom boards, we've talked about covers, but at the end of the day, everything related to all of that stuff is opinion. If you like telescoping covers, go with it. If you like migratory covers, go with them. If you like solid bottoms or screen bottoms, it doesn't matter. The key here is use what's convenient for you and protect it by assembling it appropriately, painting it, and making sure that you're able to extend its life through this regular care.

Amy 42:31
Awesome. Well, thanks for answering those. And Bob, thanks for sending us an email with all those questions. That was great.

Stump The Chump 42:43
It's everybody's favorite game show, Stump the Chump.

Amy 42:57
Alright, it's time for that question and answer time. Jamie, I've got three questions for you.

Jamie 43:02
Fantastic. Looking forward to it.

Amy 43:04
They're all random questions. So we'll just start from the beginning.

Jamie 43:07
Well, I'll give you random answers, then.

Amy 43:09
Great. Okay, so in our first question, someone named Bob, he just placed his hives on his property. And within hours, by the end of the day, there were beetles already in the hive. Have you ever observed this behavior? And how did those beetles find the hives so quickly?

Jamie 43:25
Yeah, so a couple of comments related to that. Number one, it's possible that they were beetles already in the hive, and just by virtue of moving the colonies, that became apparent. I think, in this particular individual's case, in Bob's case, he had mentioned moving his hives to an area, and then very quickly

thereafter, seeing beetles fly into it. I think, in that regard, it is very possible, number one, beetles likely find colonies using olfactory cues. That means they can smell colonies. So I think this really kind of comes to a greater question, which is, if there were no bees here in the first place, why, when I move my bees there, do beetles come in relatively quickly? I would argue that if beetles are present, then that's evidence that there are bees there in the first place. There are probably some feral colonies nesting nearby. It's also possible that there are other beekeepers in the area, even if he's unaware of those beekeepers. Another thing worth considering is that beetles fly incredibly well. We're not exactly sure what their whole range is. We've done some work with some colleagues from the Netherlands to look at that, and we know they can fly many kilometers, many miles in an evening. So we know they're capable of flying relatively reasonable distances. So it's possible that there were just beetles emerging nearby other colonies in the surrounding environment and they were host-seeking and now his colonies are the new colonies in town so they found his hives. I would argue that in most cases, perhaps, it wouldn't be that quick, but it is certainly within the realm of things that are possible for beetles to do. So I'm not surprised to hear this at all.

Amy 45:03
That's interesting. I know you did part of your PhD work on beetles, right?

Jamie 45:07
That's right. My entire PhD dissertation was on small hive beetle when I did my work in South Africa, but we never looked at their flight capacity. And as I mentioned, I've got a Dutch colleague, Bram Cornelius, who's interested in looking at that. He's done some work in our lab on that, but we're still processing the results. I'm a little anxious about suggesting how far they're capable of flying. We just saw them capable of doing it for what I would consider a great distance. So when that comes out, I'll be a little bit more comfortable talking about that specifically, but I will tell you, they do fly. Imagine a situation where beekeepers were two miles away, they left their colonies there for two months, beetles moved out of their colonies, are pupating in the ground, and the beekeeper moves his or her colonies away, well, these beetles that come up, now have no colonies, and so they go host-seeking and so there are lots of scenarios that could have led to what Bob saw with his colonies. And it's just not surprising that beetles are prolific fliers and can go where they want.

Amy 46:07
Awesome. We'll have to do another podcast segment on hive beetles sometime.

Jamie 46:11
Yeah, I think it'd be good for people who love to talk about beetles.

Amy 46:14
Yes. Okay. So for our second question, there was an inquiry about small cell foundation. So can you tell me a little bit about these?

Jamie 46:22
Yeah, just a brief background about it. There were some beekeepers some years ago who really got into small cell foundation. And the idea that you can use a foundation that has smaller cell sizes so

when the bees build the comb on it, those cells then have a smaller than typical cell size. And this was based on the idea of some measurements made on the cell size of bees nesting naturally. And they saw that it was smaller than what the foundation size is that we typically use. And so that led them to say, well, hey, if bees naturally make smaller diameter cells, maybe we should give them that opportunity and see what that does. And so, some foundation mills started producing what we call a small cell foundation. Now, the catch is that a lot of the anecdotes related to small cell foundation preceded the science very quickly. People who were using small cell were making claims that they had fewer Varroa, less this, less that, their colonies were living better, making more honey, all these claims that, at the time, were unsubstantiated. So like it often does, it took the science a little bit of time to catch up. My own wife did a project on small cell, there were three or four other labs around the country who did some research on small cell. And to make a long story short, there was no single benefit that we could find to using small cell foundation or making smaller combs. So while it does not appear to be taxing to the bees, it doesn't appear to do any of these things that people are touting it to be capable of doing. Now, that said, it's possible that there'll be new benefits found in the future. But at the moment, at least, in our research, we were looking specifically at Varroa and we found no benefit related to Varroa. And so a lot of beekeepers have kind of swung away from that. At the time, a lot of commercial beekeepers were toying with getting into it and our research and the research of others kind of suggested that it wasn't worth the effort. Again, it wouldn't hurt your bees. It's an investment because you've got these bigger bees on your bigger foundation and bigger combs that you have to transition to these smaller combs. And there's actually a step down process to get them to those small cells. Again, to make a long story short, it just doesn't seem to be worth it at the end of the day. Now, if you've already got small cell, there's no harm in doing that. But that doesn't mean your bees are going to be healthy. You'll still have to look at Varroa and these other issues to make sure they don't pop up.

Amy 48:55
Sure, and side question, are the worker bees that come out of those small cells smaller?

Jamie 48:59
They are, in fact, smaller. It appears that bees, when they grow up in a restricted environment, that does, in fact, affect the size. We don't know how. I do write the question and answer column for the American Bee Journal, it's called The Classroom, and I had someone ask me, what's the trigger for larvae to stop feeding? In other words, if they grow up in small sales or large sales, how come they're bigger or smaller? I kicked that idea around to a couple of colleagues. The best idea I heard is that when a larvae have grown to reach the cell capacity, in other words, they've grown to the point where they touch the walls of the cell, it is possible that that is a trigger to them to stop feeding. Or it's possible that's a trigger to the workers who go into that cell to stop providing food. So that question of why bees are smaller in small cells and bigger and big cells, it would be a great question for some master's student to try to address someday.

Amy 49:59
Yeah, I think it's so awesome that your wife was a honey bee researcher at one point, too. Do you have your kids working on literature reviews right now?

Jamie 50:05

There's a story related to that, Amy. The issue is that we both went to the University of Georgia. My undergrad is in biology, hers is in wildlife biology. I went off to Rhodes University in South Africa to do my PhD in Entomology. I came back home, got married to her, took her with me, and she did her master's while I did the second half of my PhD. And her master's is in wildlife biology or zoology, so it's consistent with her undergrad. Well, when we came home to the States, I was doing a postdoc at the University of Georgia, she got a job working, and she just decided that she liked school so much better than working that she decided to get her PhD. She had already done all the wildlife classes that UGA had offered. So she's like, well, I don't really want to get a PhD in wildlife biology, I've kind of learned that stuff, so I guess I'll choose insects, since that's what you do. And I guess I'll choose bees since I don't really like any of the other insects. So long story short, she just kind of fell into it by default, not necessarily out of a passion, but she has a PhD with honey bees as well. But, it's not necessarily her passion. It was more of a "I would rather be in school than be working and I might as well just do this."

Amy 51:16
That's fun. That's a good place to be. Pretty neat.

Jamie 51:18
it does mean that she can understand everything I do. So when I come home in the evening, I'm not having to explain my job to her. She's very, obviously, very understanding and an intelligent girl. She's perfect and beautiful in every way, of course.

Amy 51:31
Amanda, you're awesome. Okay.

Jamie 51:33
The thing is, Amy, she doesn't listen to the podcast.

Amy 51:35
Aw, man. Well, great. That's fine.

Jamie 51:37
I can be honest either way, Amy. Fully protected.

Amy 51:41
Okay, so for our third question that we have, what is the best way to move frames in a hive without accidentally crushing the queen?

Jamie 51:48
Great question. So what I do is I will always go into a hive and remove the second frame from the wall nearest where I am standing. So I tend to work my hives from the side. So if you number the frames one to 10, starting at you and moving away from you, I would remove the second one I kind of lightly pry it loose and slowly lift it up trying to stay centered. Then, I will put that frame outside of the hive while I work the remainder of the frames. And because of doing that, I've always got a one-frame space in my hive that I'm working, which allows me to go to frame three and kind of pop it towards me, work it,

put it back down, and then go to frame four and pop it towards me and work it and put it back down. A lot of beginners think that you take out a frame, look at it, put it back in, and move to the next frame and that increases your chances of damaging the queen. So I like to have that one-frame space. Another thing that I do, and this will probably raise some hairs in some people, is I tend to keep nine frames in 10 frame boxes, which allows me that extra space, even in the brood chamber. So basically, I have one-frame space distributed over the remaining frames, which allows me a little bit more space in my particular box. I'm not necessarily advocating or not advocating that but it's just what I do.

Amy 53:16
Sure, let's be honest here. How many queens have you smushed in your lifetime?

Jamie 53:20
I've probably worked thousands upon thousands of colonies, and I've probably been responsible for the death of a queen or two in that time. These days, it really never happens. I'm pretty good at not doing that.

Amy 53:34
Awesome. All right. So those are question and answers for today. Thank you.

Jamie 53:37
Thank you guys for asking. Keep asking those questions on social media. It's a great way to get a hold of us and we will do our best to answer here on Two Bees in a Podcast.

Amy 53:49
We'd like to give an extra special thank you to the following: to our editors Shelby Hal and Bailey Carol, and to our audio engineer James Weaver. Without their hard work, Two Bees in a Podcast would not be possible. So thank you.

Jamie 54:04
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!