

Episode 14 Mixdown PROOFED

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SUMMARY KEYWORDS

bears, beekeepers, bees, honey bees, put, colony, landscape, soil, honey, fence, work, flowers, bee, good, hive, beekeeping, research, sarah, regenerative, pollen

SPEAKERS

Stump The Chump, Guest 2, Amy, Honey Bee, Guest, Jamie

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 this episode of Two Bees in a Podcast, we will be talking with Sarah Red-Laird who is the founder of Bee Girl. She will be joining us to talk about bee nutrition and forage as well as regenerative agriculture. We will also be joined by Dr. Bill Kern who will continue talking about various pests in the apiary, with today's focus being bears. And of course, we will end with everyone's favorite, questions and answers. Welcome back to Two Bees in a Podcast for this segment. I'm your host, Jamie Ellis accompanied by...

Amy 01:39

Vu Vu. Amy Vu.

Jamie 01:42

Amy, every time I point to you, I just never know what's going to come out of your mouth. It could be you saying your name weird, or a burp, as we've talked about kind of behind the scenes.

Amy 01:50

Thanks, Jamie.

Jamie 01:51

But, we need to be serious in this segment. So in this segment, we are accompanied by Sarah Red-Laird. Sarah is the founder and executive director of the Bee Girl Organization, a nonprofit with a mission to educate and inspire communities to conserve bees, their flowers, and our countryside. To

see the latest project updates, you can visit her Instagram and Facebook account @SarahBeeGirl, that's Sarah with an H, or www.beegirl.org. All of this information will be in our show notes that you can find after you listen to our podcast. Sarah, it is fantastic to have you on board. Thank you for joining us on Two Bees in a Podcast.

Guest 02:30

Thank you so much for having me this morning. I'm very happy to sit down with you two.

Jamie 02:34

Yeah, Sarah. In the introduction, in the behind-the-scenes getting you ready for this, I mentioned this to you, but I wanted to share it with our listeners as well. One of the reasons that we're interviewing you is because you were requested in our social media accounts. People put who they want to have us interview and your name came up so I'm excited to get to know you.

Guest 02:53

Yeah, I'm flattered. Thanks, all. Thanks, people.

Amy 03:00

We just started following your social media account, and I ran into a TEDTalk that you did. And did you know that Sarah used to be a firefighter?

Jamie 03:08

Did you?

Amy 03:09

I thought it was very awesome.

Jamie 03:11

That is neat.

Amy 03:12

But she thinks beekeeping is more dangerous and fun and adventurous. So she decided with beekeeping instead.

Jamie 03:17

Well, Sarah, I think maybe a good way to get started -- we've got a lot of questions that we want to ask you -- but I think a good way to get started is just tell us about yourself, where you are right now, where are you calling in from, how'd you get into beekeeping? And then we'll use that as the platform from which we can jump into these questions.

Guest 03:33

Sure, yeah. I am calling in from Ashland, Oregon, in beautiful Southern Oregon nestled in the hills. For context, on the I-5 corridor about seven-ish miles north of the California border. Well, I can't remember

a time in my life that I wasn't into bees, starting when I was a little kid. I just was so incredibly fascinated with bees, and I loved honey. I have very pleasant summer memories of my aunt who had bees that were kept on her small farm, farming community. And so I was around for honey harvest when I was little, and I just remember having warm honeycomb straight out of the hives and I think that that did it for a lifelong obsession of bees. But I didn't officially get into beekeeping until about 2009 when I did a project in Jerry Bromenshenk's lab at the University of Montana in Missoula when I was a student there. In my degree is actually in Resource Conservation and my career path was winning me toward water policy. I wanted to be the executive director of a watershed council. I graduated during the recession and there were zero jobs and Jerry and the crew liked having me around so they came up with a position for me as a research assistant in the lab, so I stayed there thinking I would just do bees until I moved back to water policy, and 10 years later, here I still am.

Jamie 05:13

I think you made the better of the two decisions. I mean, of course, we all need water. But we also all need bees.

Guest 05:19

Yeah, true. It's actually kind of cool. It's come full circle. And I'm sure we'll get into this later, but my work now focuses a lot on regenerative agriculture. And a big part of that is restoring water cycles.

Jamie 05:32

Let's start there.

Guest 05:33

Come back around.

Jamie 05:34

Yeah, let's start exactly there. What is regenerative agriculture? Why does it interest you? Why is it important to us?

Guest 05:44

Well, regenerative agriculture, the short way to explain what it is, is leaving the landscape better than when you found it. And in today's agriculture, that's not often the case. The soil is being depleted, we're losing our topsoil, there's a lot of chemical inputs going into the soil, extremely heavy tillage is part of how a lot of our farming is carried out, and that's not leaving the soil and landscape better than we found it. So the principles of regenerative ag, to go a little deeper, are to, A, minimize disturbance in the soil, and on the landscape, so that's mechanical and chemical disturbance, leaving armor on the soil surface. So cover that soil, keep it from washing into the waterways, keep your topsoil from washing away into the waterways, keep any of those chemicals you might be using from washing into the waterways. And also protect that topsoil. You increase plant diversity, so instead of just planting one thing, a monocrop, plant many things all at once, and stack your benefits. There are many benefits that you can stack and many plants you can stack even in commodity crops. Leave living roots in the ground as long as possible. So try and work with perennial plants. And then the most important thing, I

think, is integrating animals back into the system. And that is, of course, things like livestock by using adaptive and holistic grazing, but then also, bees. Bees are an animal too, and making sure that they have a part in that system as well. I was just at a farm, Apricot Lane Farms last week, a couple days ago, and they have integrated grazing into the system, but then they were having massive fly issues, and then they realized that they had a fly superbloom from the maggots in all the animal poo. So they introduced chickens behind the livestock and now they have [inaudible]. Yeah, so it's kind of like just bringing -- it's farming like it used to be 50 -00 years ago, back yeah, but now what we know now, as well.

Amy 08:19

Sure. So Sarah, I actually did my undergraduate degree in soils and environmental science. So I'm pretty familiar with soils and non-tillage and I actually got funding to do this undergraduate project to compare two cornfields, till versus no till, and in the effects on the denitrification process on climate change and whatnot. But anyway, I'm pretty familiar with soil and I think it's really great for us to start thinking more sustainably as far as our farming practices. But you kind of mentioned forage a little bit but can you talk a little bit more about why beekeepers should care about the soils, and also are your projects focused primarily on honey bees? Do you work with wild bees? So why should beekeepers care about this?

Guest 09:09

Right. While I worked in Jerry Bromenshenk's lab way back when we were looking at clothianidin, which is neonicotinoid that's used in corn, and our research was looking at, is there lethal effects of clothianidin getting into corn pollen? And is that corn pollen making its way back into the hive? When it does get back into the hive, are those lethal or maybe even sublethal doses of this neonicotinoid getting back to the hive? That's really become the buzzword in bees and agriculture. Bee health is neonicotinoids, neonics, and everybody's kind of pointing their finger at this one pesticide of being like, "Oh, just get rid of this thing and everything will be okay and the bees will be okay." But I wasn't really sussing that out from what I was seeing in the lab back then because anecdotally, when the professors came back with all these samples from Nebraska and Kansas, they're talking about how, oh my gosh, it's pouring as far as the eye can see, you wouldn't even believe it. It's just crazy, we got lost so many times, these roads just had more and more and more cornfields. And so I thought that was interesting that people are still able to keep bees out there. I got on Google Maps and I did a little bit of research and I found out that 90% of Nebraska's tall grass prairie has been converted into agricultural and urban landscapes. We've lost 98% of the original habitat that was there. However, the bees were still able -- the amount of the colors of the pollen that were coming back were really fascinating. It wasn't just corn pollen, there was purple pollen, orange pollen, green pollen, pink pollen, red pollen, so many. So I started looking around and the only thing that I can think there are some hillsides and some riparian zones where the corn is not planted directly up to the riparian zone. So I thought, well, these bees must be getting this pollen from riparian zones. And when I jumped on Google Earth, it was miles and miles and miles and miles from the nearest riparian zones were. So I kind of had this light bulb that I don't know if it's just a pesticide issue here. I think what we're looking at is a landscape use issue and a nutrition issue. I think these bees are starving to death, and they're flying themselves to death trying to find good food, good nutrient-dense food to feed their families.

Jamie 11:43

So let me interject a comment there because I think what you said is incredibly important. I think the listeners need to hear this. So you're familiar with the Bee Informed Partnership, they do yearly surveys of beekeepers asking what's responsible for losses of their colonies. And if you cut the fluff from the surveys, it basically boils down to three things that commercial beekeepers talk about. Number one, in no particular order, Varroa and the things that they carry. Number two, queen issues. And again, this is not ranked, this is me just saying things. And the third thing that they answer regularly is nutrition, nutrition, nutrition, I think nutrition management's very important. Of course, beekeepers do that. They try to address it at the colony by adding sugar syrup and adding pollen patties and I could go on for days about whether or not pollen patties work. But at the end of the day, your comment about nutrition, this idea that they're starving, and they're nutritionally deprived, or worse yet, energetically, the benefit that they're getting versus the cost that they're making to get that benefit is really not in their favor at the moment. And we talked about these monocultures and all of this stuff, I think you're exactly right. How do we ensure that the habitat can provide what exactly the bees need?

Guest 12:57

Yeah, yeah. And there's research that came out of Penn State that said that bees really prefer to fly within a mile and a half of the colony. But on these maps, I was finding these potentially nutritionally dense zones, riparian zones, seven miles away from the colony.

Jamie 13:16

So it's funny you say that. That mile and a half is cool, but I'll tell you when I was in Keith Delaplane's lab at University of Georgia, he would always bring up this old refereed manuscript and I forget who wrote it, forget what it was, even though they prefer a mile and a half or something like that, they work best energetically within about 300 feet of the colony. So yes, they will go further. But once you cross that 300 feet, or is it 300 meters? Regardless, it's 300, relatively close, once they crossed that line, the energy benefit to them starts to diminish. So yeah, that mile and a half radius is kind of what's best to keep them in. If they're going beyond that, they are working really hard for what they're getting.

Guest 13:59

Yeah, they're utilizing those calories themselves to bring back forage or pollen and nectar to the colony. So, that was just kind of my light bulb. And then I really just hung on to habitat and hung on to nutrition. And nobody was talking about nutrition issues or habitat issues that I could find back in 2009. And I had a really hard time getting my foot in the door and trying to figure out who I can talk to you. And like you said, the only person that I was really referred to was a researcher in Arizona that was looking at pollen patties and I was like, "No, that's not what I'm talking about. I'm not talking about pollen patties, I'm talking about flowers and landscape without chemicals on them." And the only person that I was really able to connect with was Zac Browning, who's a commercial beekeeper based out of North Dakota. He's been pushing the habitat conversation forward for quite a long time and doing important work and still continues to do important work. And so we were able to share ideas and support each other's ideas and projects going forward. But I still really wasn't finding my niche and habitat. So I left Jerry Bromenshenk's lab and started my own nonprofit, which was education-based at

first because that's what the market really wanted. There were a lot of backyard beekeepers that wanted to know what they were doing and I also started a kids' program. But really what I always, always wanted to be doing was habitat conservation and thinking about nutrition, and that ended up falling in my lap. I went down that path when I was a speaker at the 2014 Northwest Farmers Union, and Washington Cattlemen's Association Conference in Spokane, Washington. A little random, but I met two farmers, they're ranchers, Beth and Morris Robinette, a father-daughter team who practice holistic management on their farm and adaptive regenerative grazing practices. So using animals on landscape to leave the world better than it was before they came. And I couldn't really wrap my head around that. I asked if I could come out to their ranch before I got in the airplane the next day, and they invited me to go out, and this was in October in Spokane. And it was a very bleak-looking landscape. It's a lot of rolling hills, covered with wheat stubble, covered with chemfallow, which is how farmers in eastern Washington were taught to care for their soils. They basically put a blanket of chemicals over the top of their soil, and it's a very monochrome and sad-looking view. Then, I get to the Robinette's ranch, and there was green grass and silky, shiny, fat, happy cows, and they showed me the system that they use. Our landscapes evolved with large herds of bison or large herds of elk moving around the landscape and a giant ball of eating, pooping, peeing microbiome goodness. Grizzly bears and the coyotes and wolves and mountain lions kept them in this ball to keep safe, think of like emperor penguins or something like that. And then they moved, they're at the landscape every day, but we've taken the large predators out of the system so now our elk and our cows and whoever's out there in the landscape just willy nilly go wherever they eat the delicious plants, which are usually the ones that flower. Then they leave a lot of the less good tasting, maybe more invasive plants behind. And they also just destroy our riparian zone. So we've gotten into trouble with the way that we've been grazing our livestock and holistic grazing is a way to reverse that by going back to this way of bunching your animals up and constantly moving them around the landscape. And you could do that either with a horse's dog team, or how they do it is electric fencing. So every single 24 to 48 hours, they're out there moving these cattle through the paddocks, which takes minutes. It takes them longer to drive down there than it does to actually move the cattle and they love it because they're going from somewhere where they totally used into a new, fresh little prairie of green grass. I had this huge aha and I looked down and there was a flower, there was a dandelion blooming in one of their paddocks in October in Eastern Washington. There was even a little pea fly, it wasn't a pea but it was a little beneficial insect just hanging out on that little dandy lion and I thought, "Oh my gosh, there's something here. There's some sort of synergy going on here between grazing animals and moving them in this way and perhaps, the potential of getting more flowers on the landscape for bees." It's done completely without chemicals. They're able to run their whole farming and ranching operation without chemicals because the urea and the poo that comes from the cattle, and then they also use compost tea, is able to to really boost the microbiome and the health of the landscape and so they don't have to use any kind of chemicals. So that's the dream for beekeepers is more flowers on the landscape and less or no chemical inputs at all. So that's why regenerative agriculture and this kind of farming style, I think, is important to beekeepers. It's a way to get food on the landscape not covered in chemicals for bees and so my regenerative beekeeping, my regenerative bee pasture project is looking at, how can we partner with our ranchers whose grazing lands make up the vast majority of land use in this country? So I think that that'd be if we can partner with our cattle men and cattle women to cover every inch of that landscape with flowers.

Amy 20:41

Sarah, so I have a question for you. And this might be a little controversial as far as what I'm about to ask. But, it seems like from what you're saying, regenerative, farming, wow, try to say that five times. It seems like that just has to be the way things should be. Right? So why has it taken so long? Why is the majority of farmland still not doing that? What do you think challenges or barriers might be? If it was that easy, wouldn't everyone be doing it?

Guest 21:13

That's a great question. And I can't answer for every farmer in the US but I can speak to what I've seen. I have the great privilege of serving on the board of directors for the National Farmers Union. I'm the president, I'm now the president of the Northwest Farmers Union. So I get to be literally sitting at the table with those corn and soy farmers in North Dakota and Minnesota, and I get to talk to them and ask them, "Hey, why do you [inaudible] when it seems like common sense to move a different direction?" And it's because this is the way that they were taught by their extension agents and by agribusiness and by chemical companies. This is what you have to do in order to be profitable as a farmer, in order to have yield, you need to spray this and you need to treat your soil this way, and you can't have cattle on the landscape because you can't integrate animals because that'll cause food safety issues. And it's just the way that we've been taught post World War Two, how to manage our landscapes, and it's been so incredibly focused on yield, but not necessarily focused on profitability. And so, yeah, it's a mindset shift that has to happen, because there are plenty of examples of farmers and ranchers out there using regenerative practices that are netting a lot of money. And one of the reasons is because they have weaned themselves off of their reliance on chemical agriculture.

Jamie 23:05

Well, Sarah, let me ask, specifically about flowers. You've been talking a lot about that. So we've been doing research of floral mixes in my lab now for 10 or 12 years, and so I struggle with the concept, right? I've worked with lots of groups, I always tell people, we've been studying it longer than it's been cool. It was cool when Barack Obama said that, "Oh, I'm gonna give money and people are going to plant flowers." Oh, that's a great idea. But I struggle, I'll just put it simply, I struggle to think of and find wildflowers that can benefit honey bee colonies. It's easy for me to come up with wildflower mixes that you can put out on your farms and see a lot of native bees fluttering around and you can feel good about yourself, but I struggle with what wildflower mixes might be necessary to support healthy honey bee population. So let me preface that with what I'm saying. So I can think a lot of things that might provide pollen, but in a lot of times, beekeepers are trying to come up with nectar alternatives, and I just struggle with that. Almost all the nectariferous flowers that I can think of, almost all the honeys that I can think of that are named across the country come from trees or shrubs. And so it's very difficult, in my mind, to think about providing those resources. So when I read your bio, when I did a little bit of research looking at these questions that we were going to ask you, I'm thinking maybe less about benefiting honey bees on farms and more about conservation of just wild lands that have these things that honey bees need. In Florida, that would be places that have gallberry, palmetto, maybe out where you are it's something different. So can you talk just briefly about seed mixes? Can you talk about what does it mean for providing floral resources specifically for honey bees?

Guest 24:55

Yeah, absolutely. For me, it all comes back to diversity. So we have to have all of it. I think trees and shrubs are an extraordinary part, an important part of the farm and hedgerows, and they always were. And there's even, specifically in the UK, there are specific animals that have been adapted to hedges like hedgehogs.

Jamie 25:19

That's where the hedge come from.

Guest 25:21

They're becoming extinct because all the hedgerows were ripped out to, quote unquote, advance agriculture. Then there's a collapse because they provided a really important service like eating pests that are going to your crop. So that's a whole nother tangent. But yeah, it's down to diversity. My primary focus tends to be honey bees because that's my background and that's what I understand and that's what I've worked in for the last decade. But I have started to also shift towards native bees and native bee monitoring. I'm part of the Oregon Bee Atlas, which is a supercharged citizen scientist initiative to start native bee taxonomic collections, and then also submit those to Oregon State University to start getting a good handle on the abundance and diversity of native bee species in Oregon. I also am part of a project where I monitor bees on a vernal pool restoration project that the collaboration between our Department of Agriculture, or excuse me, our Department of Transportation and the Nature Conservancy, and we're using bees as an indicator species for the success of the project. So I am really lucky that I get to go out and watch native bees and watch the flowers that they really like and watch how they interact with honey bees. And there are quite a few relatively easy-to-grow flowers out there that can be beneficial to both honey bees and native bees. So I don't think it has to be an either-or. And I think that it just really does come down to diversity. I think that we can have clover and something like collinsia, which is extraordinarily important to queen bumble bees in the spring on the same landscape.

Jamie 25:59

Sure, so usually, what I tell people when I talk about this, I'll just simply say, this is a budding area of research that needs a lot of students, we need a lot of graduate students, a lot of faculty members looking at this because having been in it now for over a decade, I'm not at the moment convinced that it's as easy as just planting flowers. I think it's going to take a more holistic integrated approach to providing lots of floral resource habitat. I like your comment about hedgerows and trees and shrubs, ensuring that places like that occur on farms. I think wildflowers are part of the answer. But I think where you're going is headed in the right direction. And frankly, I think that this is going to open up quite a few, I mean, I've already seen it in the last decade, the number of native bee scientists who exist at universities has absolutely exploded. The number of students they're able to attract have exploded. Almost every university has a honey bee person, has a native bee person now who's looking at putting out wildflowers or habitat restoration and all that stuff. So I really think the next decade is going to really show us a lot of new information on this topic. I appreciate you being on the cutting edge of that work.

Guest 28:41

Yeah, yeah. And I think I our seed mix that we're trialing right now, I think we have 17 different plants in there that we're trying to get to grow. And that's the thing too, is you mentioned everybody, so now planting flowers for bees is the thing. And I have so many people that I've talked to that are anywhere from just backyard gardeners to somebody who owns 40 acres that they're not doing anything with it, and they want to put flowers out there, to farmers that really do have a handle on what they're doing. And they all are still kind of struggling with figuring out what to plants out there and what can be the most beneficial and even getting the farmers to grow in the first place. And that's again where it comes back to soil. I spoke at a beekeeping conference in Los Angeles and a beekeeper there lives in, oh my gosh, I want to say somewhere in the Midwest area, maybe it's Nebraska. And he said, "I've been trying to get flowers to grow. I have 30 acres that I've tried to put and make green pastures. I've been trying to get flowers to grow for three years and I can't get them to grow." And I said, "Well, what was there before you were starting to plant flowers?" He was like, "Well, conventionally farmed corn and soy," and I was like, "That's your answer. Your soil is obliterated. You have to get really focused on rebuilding that organic matter and that soil biology before you can get healthy flowers to really be able to thrive in that environment." So I think my seed mix that I'm trialing right now, and I worked with the pasture and range guy at my Oregon State University Extension to come up with, and so I think we have 17 different kinds of plants in there. And it's a very even mix of grasses, legumes, brassicas and broad weaves. And it was fun for me to come up with it with him because he's such a range guy, and he's so focused on just grasses, and maybe a little bit like alfalfa or something here and there to put in for cattle, to put in some nutrient density for cattle. But mine is very, very, very flower heavy, and we have birdsfoot trefoil in there, and we have sand coin and red clover, and we also have a few different kinds of mustard and buckwheat, cecilia, and four different kinds of sunflowers and okra is my wildcard. See, we can get okra to grow because it's supposed to be an extremely good pollinator plant as well as very nutritionally dense for grazers. So yeah, so I think it can be a "yes, and" with feeding both our honey bees and our native bees on agricultural landscape, and I think it can be a "yes, and." You can put some native wildflowers out there as well as things like mammoth sunflowers, and okra and cecilia and buckwheat and different kinds of clovers. It doesn't have to be one thing or the other. I think, also, of course, the trees and the shrubs, we just need more diversity on the landscape. Like you said, it's true, it's not easy to need to figure this out. Everyone needs to figure it out, or we would all be doing it already.

Jamie 31:56

Oh, for sure.

Amy 31:57

Yeah, definitely. It's funny because I am from Kansas so it makes sense that I was doing a study on soils and corn. But it's different as far as the zoning goes throughout the country. I mean, the plants that are going to be grown in Oregon are going to be way different than the plants that we can grow here in Florida. I was very surprised at how much sand we actually have here.

Jamie 32:18

To add to that, ecotypes are different. Partridge pea is something that's grown a lot of places around the US, but if you don't have a local ecotype, just because you're planting it and just because it's native doesn't mean it's going to thrive, in Florida, as an example. We've seen that. So, we're talking about regionalized mixes created from seeds that are probably ecotype locally relevant. There's a lot that has to go into this.

Amy 32:43

Feel free to send your seeds over this way, and we'll try to grow them and not make them invasive.

Jamie 32:48

Last question for you. How can people find out more about you and your program?

Guest 32:55

Everything's on my website. So BeeGirl.org, and. And then I'm also really active on social media on Instagram and Facebook, and I'm up to a lot of stuff all the time. I'm pretty good about updating people about what I'm up to. And I use the hashtag #RegenerativeBeePasture. So people, if they want to find specific posts that are just about that they can find that.

Jamie 33:19

They can find you on your social media accounts @SarahBeeGirl, that's Sarah with an H, right?

Guest 33:25

Exactly. I even sell my seed mix. It's on the blog. There's regenerative bee pasture blog on my website, and my seed mix is up there if anybody wants to check it out, because that's the one thing that people always ask me after I do a talk on my bee pasture project is, "Oh, what's your seed mix?" Again, it's just like you said, it totally depends upon where you are in the country and how much sun you have and how much moisture you have and what kind of soil types that you have. So this is what I'm working with for the West Coast and for more arid areas. But I just put a proposal into work a project here in Southern Oregon, and there's nine different types of soil on 200 acres.

Jamie 34:11

Sarah, you'll be happy to know that we even have our own seed mixtures on our website and that's the research we've done. And incidentally, listeners, all that information about Sarah, her interview, the links that she's talked about, as well as anything we have about this topic, we'll put on our show notes where you can find them. So Sarah, thank you for joining us. I really appreciate having you for this podcast.

Guest 34:30

Thank you so much. It was wonderful to sit down with you two this morning and yeah, it was a great conversation. Thank you for the opportunity.

Jamie 34:40

Everyone, that was Sarah Red-Laird who is the founder and executive director of the Bee Girl Organization, which is a nonprofit with a mission to educate and inspire communities to conserve bees, their flowers, and our countryside. Sarah, thank you for joining us on Two Bees in a Podcast.

Guest 34:53

Thank you.

Honey Bee 35:00

For additional resources, visit the podcast page on our website UFhoneybee.com

Jamie 35:13

We're continuing, today, our discussion of apiary pests. These are things that bother honey bee colonies from the outside in. Today, to join us to talk about that, of course, is Amy Vu.

Amy 35:25

Hi.

Jamie 35:26

And Dr. Bill Kern who is the Associate Professor in Entomology from the Entomology and Nematology Department at the University of Florida's Fort Lauderdale Research and Education Center. Welcome back, Bill.

Guest 2 35:36

Thank you.

Jamie 35:37

Bill, we're talking about something today that kills, actually, quite a few colonies in Florida. Not just Florida, but really around the US. And that is the bear. So why are bears a problem for bees?

Guest 2 35:47

Well, black bears are intelligent, they're strong.

Jamie 35:53

Wow. You're describing me. They're covered in hair. Oh, you got me.

Amy 35:59

Bill just rolled his eyes.

Guest 2 36:02

They're a tad bigger than you.

Jamie 36:04

Oh, that felt like a burn.

Guest 2 36:05

Okay, and they're omnivores, just like we are, and they love all the yummy goodness inside a beehive.

Jamie 36:17

So you mentioned black bears specifically. There's lots of different types of bears. Why are you picking on black bears? Or is it because they're the bigger of the bear problems versus the brown bears or the grizzly bears?

Guest 2 36:25

They tend to be more of a problem. They tend to have a wider distribution in North America, and in other parts of the world, you're going to have different bear species. The only continent that doesn't have bears is Africa. Asia has bears.

Jamie 36:47

What bear is in Antarctica?

Amy 36:49

The polar bear.

Jamie 36:50

No, that's --

Amy 36:51

Oh, man.

Jamie 36:53

I'm grateful this is a bee podcast, Amy.

Amy 36:56

I'm not a polar bear expert.

Jamie 36:58

Well, Bill's gonna walk that back. I always forget poor little Antarctica hanging out down there by itself.

Guest 2 37:04

Antarctica has the leopard seal, which is --

Jamie 37:08

A swimming bear? Are you going to tell me that's a swimming? That's a swimming bear. Oh, Bill, I can barely take it. Alright. People want to learn from this podcast. I think. Alright, so bears can be a problem. People always associate bear issues like Winnie the Pooh, right? Winnie the Pooh goes boppin' up to a tree, reaches his hand into a hornet's nest and pulls out honey, right? That's usually the

way that bee hives are drawn on Winnie the Pooh. But are bears going after just honey? Why would they attack a honey bee colony?

Guest 2 37:41

Well, they're going after everything in the honey bee colony. They'll chew up the comb to get the honey, they'll go into eat the brood, and they're probably actually getting a fair amount nutrition from the pollen stores as well. So there's all kinds of yummy things in that hive that bears are going to go after. It's not just, "Okay, I'm gonna stick my paw in the entrance and pull back some honey." No, they'll knock over the hive, and they will just spread your frames everywhere. They'll eat whatever they can, and they don't seem to be overly concerned about about the bees defenses.

Jamie 38:24

They're pretty incredible animals. When I first moved to Florida, I heard about the exotic animals, the alligators, the Florida panther, things like that. But I hadn't really thought about Florida as a bear state. We have this black bear that's really throughout the southeast and other parts of the US. These bears, we've had apiary loss, we've certainly had colonies taken over by bears, and we've had instances where bears would pick up the hive and take it with them into the woods, and then dismantle it there and eat the contents. And in fact, in these areas, we'll talk about this more in a moment, but in these areas where bears are present, we've had to put up bear fences. Let's not talk about control just yet. But let's talk about specifically the damage that they can do.

Amy 39:03

I mean, I I feel like a lot of the beekeepers that I've encountered, especially here in central Florida, they have encountered bear issues at some point or another, or they know someone who's experienced the bear issues and they usually take pictures and start sharing.

Jamie 39:19

I'm from Georgia, and even though there are bears in central and southern Georgia, the biggest problem for bears is in north Georgia, in the mountains, and all the beekeepers in the north Georgia mountains and really through the Appalachians will put bear fences around their barriers. Again, we'll talk about the control in a moment, but these things are a big problem and because we don't visit apiaries every day, we don't discover that there's a bear problem and then the bear has been doing its thing for a week or two weeks, and at that point, you can have had a number of colonies taken over.

Guest 2 39:48

Especially when you have your apiary up in the mountains. You put your bees out to get a crop of sourwood honey or --

Jamie 40:04

Tulip poplar honey. All kinds of things up there.

Guest 2 40:06

Tulip poplar honey!

Jamie 40:07

That's why I'm here, Bill. To spoon feed you.

Guest 2 40:10

Yes. Now, in Indiana, it would be basswood honey. But, when you have those colonies, those apiaries out in the woods, you put them out there and you may check them once every two weeks or once a month, but once the bears find an apiary, they will keep going back until there's nothing left. So, one of the things that we try to do is we don't want the bears to learn that our bee hives are good sources of food.

Jamie 40:51

An ounce of prevention is worth a pound of cure. You're wanting to prevent the problem. In the case of bears, you want to address it before you have it because once bears have figured out where your bees are, Bill, you're right, they're gonna keep coming back.

Amy 41:03

So then, what do we do to control it?

Guest 2 41:05

The simplest thing is to make sure you don't have any branches hanging over your bee yard, and then use electric fences. We generally recommend that you use a fencer, which is the thing that charges the wire, that is good for up to a five-mile fence. Backyard fencers just don't do the job. They're only good for about a half an acre area. So you want a charger that will charge up to five to 10 miles worth of linear fence line. And some people like to use the braided ribbons because they tend to be a little bit stronger. The wires are woven into nylon, and it tends to make it harder for the bears to break the wire. Sometimes what they'll do if they've learned that the hives are good place for food, they'll just go in and they'll just hit that wire. They'll take the shock and snap the wire and then just walk right in. We've seen bears that have figured out, "I can jump over the fence and it hurts but..."

Amy 42:27

It's worth it.

Guest 2 42:28

It's worth it.

Jamie 42:28

Or I can crawl under the fence. And you mentioned this whole thing about branches touching bee hives. What does that mean?

Guest 2 42:33

The other thing that bears will do is they'll climb up a tree, and they will go out on the branch and drop inside of your electric fence.

Jamie 42:44

How do you get out, stupid?

Guest 2 42:46

Oh, then they just burst out.

Jamie 42:50

What Bill's describing here, for your listeners, he's describing a bear fence, right? There are lots of resources for building bear fences. In fact, we even have some resources that we'll put up for this particular podcast episode. But the fences are best if they have three wires. You mentioned a five to 10 mile charger. If that doesn't make sense to you now, when you go to the hardware store and look at these different chargers, you can see it'll tell you five miles, 10 miles, 15 miles. And so obviously, the higher the number of miles, the greater the number of miles, the more you're gonna have to pay for that. I really would recommend using a solar charger. A lot of people just use a straight up car battery or something to keep that thing going. But a solar charger means that it's going to keep it going and you won't have to change out batteries.

Guest 2 43:32

That will recharge your battery, so it'll be continuous.

Jamie 43:35

Exactly.

Guest 2 43:36

If you don't have access to electricity, that's a good choice. Even with a deep cycle, like a marine battery, it's going to run out after a couple of days.

Jamie 43:47

I've known commercial beekeepers who essentially have a rotation of batteries back at their shop. Every time they go out to work in apiary, they'll take a freshly charged battery, exchange it out for the one that's been sitting in the field and bring that one back and put it on the battery charger, waiting to go back next time with them. But I liked the solar chargers. You just have to pay a little bit extra for the solar panel.

Guest 2 44:07

The other thing that's important is when you set up your fence, make sure your charger, your battery, and your solar panels are inside the fence because bears seem to know if they knock over your charger and cause a wire to become disconnected, it doesn't work anymore. And they can actually hear it humming and they can tell when that charger is active and when it's not.

Jamie 44:44

So, Bill, I was given the coolest tip when I was much younger and working with a commercial beekeeper up in the north Georgia mountains. He had bear fences, this beekeeper, I'm going to give him a shoutout, that's Carl Webb, he taught me a lot about beekeeping in the mountains. He always told me you could tell the fence was working if you take a long piece of grass and put the tip of the grass on the fence and then slowly move your hand forward with the grass touching the fence until you start to feel just a little bit of a tingle. You kind of walk your way to that fence, essentially, with your hand and that piece of grass. And then when you feel it, you'll know that it's properly charged. If you get too close too fast, it'll zap you. But that's always been a neat way to test that the fence is still working. You're going to obviously have to keep things from touching the fence, no limbs, no grass, etc, so that it doesn't ground out. But again, there are proper instructions for that here at our website that you'll be able to find in the show notes. So, apart from bear fences, what else can you do to keep bears out of your apiary?

Guest 2 45:34

There are not a lot of other things you can do. Now, for some things, some nuisance wildlife, there are things you can use like effigies. There was a device we used to use for keeping birds away from catfish farms, it was called scary man. It had a motion sensor, and it had a fan and it had a speaker, and if you got too close to it, the fan would go on, the body would expand.

Jamie 46:10

That is freaking me out, Bill.

Guest 2 46:11

And it's like those --

Jamie 46:15

When you go buy the used car salesman. We know those guys. I'd be a little nervous if I was walking around a field and one of those popped up and started shaking at me.

Guest 2 46:24

Yeah. Well, you can imagine how a bear would feel. So they have --

Jamie 46:29

Actually, I can't.

Amy 46:31

Jamie's like, I understand.

Guest 2 46:33

The problem with anything that's repellent is that, in time, any animal can get used to it. And if the bees know that there are honey in those hives, putting up electric fence after the fact is not going to do any good.

Jamie 46:53

That's right, the key is doing it in advance before you ever have a problem. If you have a problem and then try to solve it with a fence, it's often late. If you have a problem, you probably need to move your apiary at that point.

Guest 2 47:05

Then, of course, there's also the other trick, while you're out in the bee yard, you just take a long piece of bacon, hang it from your hot wire on top to your ground wire in the middle, and just wait for it to cook.

Jamie 47:19

By the time you're done working your bees...

Guest 2 47:21

And then you make yourself a bacon sandwich.

Jamie 47:23

That's clever.

Amy 47:25

Is it true that the reason why beekeepers wear light clothes is so that we don't look like we're a bear? Is that true? Did I just make that up?

Jamie 47:34

So there are two reasons I've heard. Number one, I think the most practical reason is that bees -- well, first of all, there are two things, right? One practical reason is that bees do, in fact, attack dark colors. And so people have always said that their major predators, bears, honey badgers, wherever on the planet you are, often are dark. So they'll sting dark colors. I think another more likely reason it's just hot. It's hot to wear dark colors, right? So we wear light colors because it's better that way. Yeah. So thinking about these bears, well, we're almost done here with this segment. Bill, I wanted to ask you a question. When I first got hired at UF, this was one of the first documents I had to review as a new faculty member. And at the time, the older documents said the Fish and Wildlife, the group that would deal with nuisance bears, would actually trap a bear and then pull their tooth so that bear would associate that location with a little bit of pain so that they wouldn't come back to that location. Is that real? Or is that something --

Amy 48:00

Yeah, thank you.

Guest 2 48:32

I've never heard that. And more likely what they were doing is they were pulling a tooth. So they could take a cross-section, and then they could determine how old the bear was. Okay, they can give some idea of its health condition and its age.

Jamie 48:50

All right. So in summary, guys, bears are a problem for bee colonies in areas where bears are present. They're going to those colonies to eat more than just honey, the brood, the pollen, perhaps some wax, we know they're going after honey as well. They'll cause significant damage destroying the physical hive, they can carry hives off, they tend to do this at nighttime and they can do it over multiple nights until you discover it's happened. The best way to stop this problem is to prevent it and actually keep your apiaries in a bear fence prior to having a bear problem because once the bears discover your colonies are there, it is too late. Am I right, Bill? Did I get all of that?

Guest 2 49:27

That's correct.

Jamie 49:27

Well, Bill, thank you so much for joining us. That's Dr. Bill Kern, Associate Professor of Entomology in the Entomology and Nematology Department from the University of Florida Fort Lauderdale Research and Education Center. Thank you for joining us as we talk about bears as apiary pests.

Guest 2 49:40

Thank you.

Stump The Chump 49:50

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

Amy 50:02

It's question and answer time. Jamie, I have a couple of questions from people on Facebook.

Jamie 50:06

All right, looking forward to trying.

Amy 50:08

Awesome. So the first question is from Bobby.

Jamie 50:10

Hey, Bobby.

Amy 50:10

Bobby on Facebook. So he said that as he begins to add supers to his hives that he knows that there's a recommended sequence, right? So when he adds a second super, he's gonna put it on top of his deep box.

Jamie 50:22

I kind of know where that question is heading. Alright, so basically, Bobby's asking, should I bottom super or should I top super? And if I bottom super, what's the order to do that? So for those of you who

don't know, let's put our imagination caps on for just a second, you've got a deep brood box, a full-size deep Langstroth-style brood box. Let's put a medium box on top of that that's full of honey, and that medium box is the honey for that colony. So that's the standard hive, one deep, and one medium. I'm just giving this as fictitious. So let's say your honey flow starts. Where do you put that first super where you're going to collect honey? Well, if it's your first honey super, you'd put it on top of the two boxes.

Amy 51:03

Stack it on top.

Jamie 51:03

Yes. So now, let's say the honey flow is really going well. Does that next super that you want to add go under the super you just added or over the super you just added? It's the bottom versus top super debate. And the research has shown, do you want to know?

Amy 51:22

I want to know.

Jamie 51:23

It doesn't matter. It doesn't really matter significantly. A lot of people have convinced themselves that if they put the empty supers closer to the brood box, in other words, under all the full supers, that they might get more honey quicker, but it's just simply not supported. I always tell people, save your back and put the empty super on top.

Amy 51:43

That's exactly what I was gonna say. For me, it'd be easier to just put another super on top.

Jamie 51:46

But you know what's funny, Amy, is despite that, I still find myself bottom supering because, in my mind, it makes it so I want to do it. So Bobby's question is, where would I put that second or third super? Well, if your bottom supering, you would put it under all of the other honey supers that have been added, which would raise the entire pile. It'd go under the first super and the third super would go under the second super, which is under the first super. So basically you're adding and pushing those up. But ultimately, I don't think it's necessary. You just put them on top. Save yourself the trouble.

Amy 52:17

How many supers have you had stocked up?

Jamie 52:20

So when I was a kid I used to super in deeps. So yeah, that was back when my back was invincible. And the average deep is about two shallows or a medium and a half, so I've had three deeps on a hive before. So what would that be? About six shallows, somewhere, four, four and a half mediums when I grew up in Georgia, when I was up there.

Amy 52:41

Impressive. Impressive. Alright.

Jamie 52:43

I was impressive.

Amy 52:44

Was.

Jamie 52:44

Oh, you're talking about my bees. That's okay.

Amy 52:46

Past tense.

Jamie 52:46

Next question.

Amy 52:47

Okay, so the next question is from Heather on Facebook, and she's wondering if there's any information on azaleas and honey bees.

Jamie 52:54

That's a good question, mainly because I don't know the answer. So I'm going to tell you what I do know, what I've looked up and found since.

Amy 53:00

I mean, I see bees on my azaleas.

Jamie 53:02

Yeah, honey bees or bumble bees?

Amy 53:03

I see bumble bees and carpenter bees.

Jamie 53:05

That's the key. So I have honey bees and also have azaleas and I've never seen my honey bees working azaleas. That does not mean that they don't work azaleas. I've quickly looked on the internet, and people have posted pictures of honey bees on azaleas. I think the reason the question was asked is because azaleas are related to rhododendrons and rhododendrons can produce toxic nectar. So if honey bees are foraging on that, the honey that comes from that nectar can actually be toxic for humans and other mammals. But I just don't think that, in much of the US, honey bees visit azaleas in

nearly the densities that would lead to a problem downstream. And that's if azalea nectar is toxic the way that rhododendron nectar is. There's a lot of ifs in that statement. It's not something --

Amy 53:56

Say if one more time.

Jamie 53:57

It's not something I sweat over. And I'll tell you, I live in the south and there's rhododendron, I'm sorry, there's azaleas everywhere. And I just have never heard a story about people getting sick from eating azalea honey. Heck, I've never even seen a jar of azalea honey. On the other hand, I looked it up all and there are beekeepers from around the world who are, quote, producing azalea honey, so maybe it's a different story elsewhere, but I don't think it's a big problem here.

Amy 54:20

I'd be interested to go and test it in the lab. All right, the last question we have is from Alyssa, again, on Facebook. We've had a lot of Facebook messages lately.

Jamie 54:29

Well, we've got a lot of followers on Facebook, Instagram, and Twitter. So keep it up. Tell your friends.

Amy 54:34

We'll have to do like Snapchat and whatnot, add more.

Jamie 54:37

Whatnot? Are you just saying whatnot, or is that also an app?

Amy 54:40

WhatsApp, whatnot? Gosh.

Jamie 54:43

I'm so old, I don't really know. There's Twitter, Instagram, Facebook, there's Snapchat. Is there whatnot? Or did you just say that?

Amy 54:50

No. I just said that and whatnot.

Jamie 54:52

Oh, my bad. Is there a My Bad, because if there's not we need to make it.

Amy 54:54

We can start that. Okay, so Melissa was wondering, she has an oak tree that was killed during her hurricane. The tree fell on top of her house and there are still a lot of bees in it.

Jamie 55:04

In that tree?

Amy 55:05

In the tree. So about 25, I guess 25 feet of the trunk is still there, and she can hear the bees. So she's wondering how she can get rid of them.

Jamie 55:14

There's one of two things that you can do. Number one, you can contact a beekeeper who will come and try to remove that colony and perhaps, put it in a hive and take it back to their operation and try to manage it. In some cases, depending on the way the colony is in that tree, or how difficult it is to get in there, it may be very difficult to remove that colony alive, but a beekeeper can certainly try. The second option is you can contact a pest control operator who will come and treat that colony. And you've got to know that if you elect that option, which, it's an acceptable option, if you decide to do that, if you do that, the pest control operator is going to eradicate that colony. So you've got beekeepers who will try to remove it alive, and you've got pest control operators who will eradicate it. But if it's posing a problem to you, I would strongly recommend that you have something done about it. You need to contact one of those two individuals.

Amy 56:04

Sure. And I mean, on that note, people who are arborists won't actually work on your trees until you get that handled.

Jamie 56:10

Yeah, and another important note, too, is they might say, "Well, that's all well and good, Jamie, but how do I find a beekeeper? And how do I find a pest control operator?" Well, pest control operators are generally pretty easy to find because they're businesses that you can just Google "pest control in my area." But likewise, there are local beekeeper clubs all around the US. Heck, for that matter, all around the world. So you probably have a local beekeeper club near you. You can just Google where you live. In my case, it'd be Gainesville beekeepers, Google, Tampa beekeepers, Washington beekeepers, New York City beekeepers, and you're likely to find beekeepers in your area.

Amy 56:46

Are you going to be able to find beekeepers by googling?

Jamie 56:49

Yeah, absolutely. You can find beekeepers by googling. Basically, you're finding local bee clubs.

Amy 56:54

Yeah, absolutely. I know. I'm just giving you a hard time.

Jamie 56:56



Once you get to the local bee club, you'll be able to figure out who there might provide that service for you.

Amy 57:02

Great. All right, keep the questions coming. We love them. Email us, call us. Don't call us actually because I might not pick up the phone.

Jamie 57:09

You answer the phone, Amy?

Amy 57:11

I'll be sitting here podcasting. But all the social media, we really enjoy all the questions that are being asked.

Jamie 57:15

Yeah. Thanks for joining us on Two Bees in a Podcast.

Amy 57:24

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 57:39

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!