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SPEAKERS

Honey Bee, Siri, Guest, Jamie, 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.

Amy 00:41

Welcome to Two Bees in a Podcast. We have a very exciting episode for some of you, and I think commercial beekeepers will really enjoy this one too. So our first segment is with Dr. Josette Lewis, and she is with the California Almond Board. She'll be discussing how the Almond Board serves beekeepers, landowners, and all of the above. In our second segment, we'll have Sarah Stern from Concord farms in Wisconsin coming to talk about her life as a commercial beekeeper and some of the logistics of pollination, and just being a beekeeper in general, a commercial beekeeper. Finally, we're going to finish off with a question and answer, and we're gonna call it Stump the Chump, not Chump the Stump, which I call later on. Enjoy.

Jamie 01:33

Hey, guys, thanks for joining us on Two Bees in a Podcast. In this segment, I'm Jamie Ellis, accompanied by Amy Vu to co-host this segment. Hey, Amy, again.

Amy 01:40

Hi, again, and every other segment, almost.

Jamie 01:43

Sorry. It's always nice to have you there because you're the comedic relief.

Amy 01:47

Oh, thank you.

Jamie 01:48

You were supposed to say something funny in response to that. You kind of flamed out.

Amy 01:52

My bad.

Jamie 01:52

Anyway, this is going to be an exciting segment because we are going to be discussing pollination of almonds in California. It's a big topic for commercial beekeepers all around the United States. In fact, when I travel overseas, a lot of beekeepers and scientists and colleagues overseas are trying to find out how American beekeepers do this. We move our bees thousands of miles for this particular crop. And really to have this discussion today, we're very privileged to have Dr. Josette Lewis, the Chief Scientific Officer for the California Almond Board with us in the segment. Hello, Dr. Lewis. Thanks for joining us.

Guest 02:28

Hello, great to talk to you from California.,

Jamie 02:31

Absolutely. So just for the listeners, assurance is here. We, Amy and myself, we're on the Eastern time zone and we're at 10 o'clock, 10:11 or so on the day that we're recording this podcast. But Dr. Lewis is so dedicated to beekeeper education, she's joining us three hours behind us. She's currently living in the past. So at 7:11 in the morning, and she's joining us. So thank you so much for getting up early, and joining us on Two Bees in a Podcast.

Guest 03:00

My pleasure. Farmers usually get up early. So that's not unusual.

Jamie 03:05

In fact, they've probably all been up hours earlier than us even still, right? All right.

Guest 03:10

Indeed.

Jamie 03:11

So we actually have a lot of great questions for you. So we appreciate having you on this podcast. I'm just going to start off at the very beginning. What is the California Almond Board? What is it? What does it do? What's its history?

Guest 03:23

Sure. So we started in the early 1970s. We are a federal marketing order under the auspices of USDA. The USDA provides several different mechanisms by which growers can collaborate and fund research

and general marketing of their commodities. And so that is the system by which the Almond Board of California was created in the early 1970s. We are funded by growers voting to assess their production in order to fund the research and marketing of almonds. So we are grower-funded and we are a nonprofit under the umbrella of USDA.

Jamie 04:12

Well, that's interesting. Let me ask a question about that because, obviously, we have beekeepers who want to pursue beekeeper-related research but we don't have a similar system in place for beekeeping. So how is it grower-funded? Is there a percentage of their production, and you said the growers vote to do this? Is this something that could go away tomorrow if a grower said enough is enough?

Guest 04:33

Yeah.

Jamie 04:34

Yeah, you take those questions.

Guest 04:40

Yeah, so there's a vote every five years. I believe two-thirds of the almond farmers in California, well, since all the almond farmers are in California, two-thirds of the farmers have to vote in favor of continuing the assessment and have to vote, in essence, to continue the Almond Board of California. So we just had the last vote last year, and I think somewhere over 95% of growers voted in favor of continuing the Almond Board.

Jamie 05:15

I was gonna say you're clearly successful because you've been around since the 70s. Right? So they must have a lot of faith in you.

Guest 05:20

Yeah, the industry has changed a lot in that period of time. Big expansion of acreage, and a lot more emphasis on marketing of almonds around the world. So the industry has become both bigger and more sophisticated. There is a lot of emphasis not only on how to grow almonds profitably and sustainably, but also how to make sure there are high-quality markets for all those almonds in a variety of different products around the world.

Jamie 05:49

Let me ask one more question, then, about the structure. How many of you are there? I mean, what is this funding support? What's the staff size? Things like that.

Guest 05:59

Sure, the staff of the Almond Board is just a little over 50 people, several of those overseas. We have a substantial marketing programs in Asia and Europe. So we have a couple of staff people overseas. Most of them are here in Modesto, California, which was the headquarters, they own the board. And the way we operate is we actually rely a lot on volunteers from the industry, so those growers who pay the assessment as well as other professionals that provide services to growers, folks involved in the

processing of almonds. We have three different sort of big segments of our industry, we have farmers, we have huller shellers, that's kind of an intermediary processing step, the name is pretty clear what it's doing, taking the hull off and shelling the almonds, and then we have handlers who actually further process the ailments and sell them into the market, either into food companies or into branded products. So we have over 150 volunteers from the industry that help serve on committees and working groups, which helps us prioritize how we make investments of those grower dollars to help serve the benefit of the whole industry.

Amy 07:10

Wow.

Guest 07:11

In addition to the staff, we have a lot of great volunteers from the industry who help make sure that we're keeping California almonds in a global leadership position and making sure it's both a profitable and a sustainable crop.

Amy 07:27

That's amazing. You kind of don't think about marketing being one whole segment of the entire industry. I don't think people really think about that that often. But it sounds just really amazing what you guys are doing for the growers. And so, do you work a lot with beekeepers? How can we kind of tie this together? So what relationship do you have with growers you have, but with also beekeepers, how do you kind of tie that together?

Guest 07:55

Yeah, well, bees are essential to getting almonds. Every almond you eat is because a bee helped pollinate that almond blossom early in the year. So they're an essential part of our industry, and we have quite a lot of focus to make sure we have good relationships with beekeeping industries and with beekeepers themselves. In fact, we have a pollination and bee health working group that helps us decide our priorities for funding bee research, and we have beekeepers who are part of that working group to make sure that whatever we do serves the needs of beekeepers as an essential part of our industry. We are members of a number of beekeeping organizations from the California State Beekeepers to the American Honey Producers, the American Beekeeping Federation, the Honey Bee Health Coalition is another, we're a member of that. So we participate in most of the national bee meetings, and really try to make sure we have a good dialogue with both the beekeeping industry as a whole, but also with individual beekeepers who can be important sounding boards and advisors to the Almond Board as we look to create a positive working environment for both beekeepers and almond growers, as well as a positive environment for honey bees to flourish when they're in almond orchards.

Jamie 09:28

Yeah, as a faculty member and a scientist, one of the things I appreciate most is you guys fund beekeeper research, which is a little novel if you think about it because, I mean yes, bees are directly important to your crop, but I can't really think of any crops outside of almonds that actually fund something that's related to bees. Usually it's almost always crop first. And yeah, we can get into the argument that almonds need bees, so it is crop first in this case, but usually it's nutrition for the crop or water for the crop or growing conditions or breeding. But you guys are essentially funding something

outside of almonds. I guess my point is you don't see watermelons doing that and blueberries doing that and things like that. But you do see almonds. So I think that's neat. What amount of funding is available for bee research, specifically for honey bee research every year? You mentioned funding projects. So what level of funding and approximately how many projects do you fund every year?

Guest 10:24

So the level varies, I'm sure, from year to year. I actually just concluded my first year with the Almond Board. So I have to think back in history. I think the number of projects and the total amount of funding has varied depending on the scope of challenges that we're addressing. So, at some point during the early days of the Varroa crisis, I'm sure we were funding even more work on Varroa than we are today. So I would say, on average at any one year, we probably have about four or five different research projects going on specifically in the area of bee health. And the total amount of funding is probably highly variable from, I don't know, \$100,000 to \$400,000 a year of ongoing research at any one time. So, probably it's one of the long-standing components of our research portfolio, as you mentioned. We're a big funder. I know we are the largest agricultural commodity group to fund bee research. And we also do a lot to try to coordinate that research with other organizations that fund research. So we have, actually, at the end of this month, a meeting that we're co-hosting with Project Apis M, another great organization that funds bee research, to bring together some of the beekeeping organizations that also fund research with their membership dues, so, California State Beekeepers, American Honey producers, American Beekeeping Federation, as well as talks with USDA and EPA. We're gonna co-host a two-day meeting to talk about, what are the joint priorities? And how can we better collaborate, maybe even do some joint calls for proposals to make sure that we're really leveraging and getting the greatest impact for beekeepers from the research that we fund? We hear a lot about --

Jamie 12:31

I think that's great.

Guest 12:32

the importance that beekeepers want to have. They need some solutions today while we work on the solutions of tomorrow. We're hoping at this meeting to also sort of look at, how can we really speed up the translation of research, maybe fund some really short-term things that can give beekeepers practical solutions while tackling these bigger challenges over time?

Jamie 12:56

I think that's great. It's cool that you guys work together. I don't want to interject a sour note. One of the difficulties I have is I'm not even able to apply for funding from any of the agencies you mentioned. Our university doesn't allow us to apply for funding if indirect costs are not permitted. And almost all grower groups that you've said don't permit indirect costs. So not all universities are able to take advantage of the great funding sources that you guys are. I don't know. I think you guys do great work.

Guest 13:28

Well, I'd be happy to talk to your sponsored programs office.

Jamie 13:30

Yeah, well, I can tell you with certainty, when that came down to us, there was an uproar, but to no avail. The University says if we don't get 12% indirect costs, then it's costing the university to do the project. And none of those agencies permit that. So, I'm glad that others are able to tap into it. But there are at least a few of us who cannot utilize the resources that you guys are able to provide.

Guest 13:56

I'm sorry to hear that. But we do fund research around the country.

Jamie 13:58

But yeah, that sounds like a sour note but you guys do a great job. That's certainly not a knock. It's just me saying I regret that we're unable here at the University of Florida to take advantage of that.

Amy 14:08

Yeah. Josette, you were kind of talking about the research that you guys get to do. We posted on our social media pages asking people if they had questions. A lot of the questions, actually, you might be able to answer just as far as maybe what research you guys are doing or what you've been able to fund, but it is a lot about colony health and the bees. So I guess one question is about transportation and disease and pests. Is that something that you guys work with?

Guest 14:36

Sure, we have funded quite a lot of research, particularly around pest and disease management for beekeepers. So this is really 100% geared at the beekeeper side of it, not so much in the almonds. We do fund, in that area of research, we funded quite a lot of research on Varroa mites to try to understand the lifecycle of a Varroa mite in a hive and what does that tell us in terms of potential control strategies, funding research on different control mechanisms and development of best management practices for Varroa control. We're currently funding a project at Washington State University on using cold storage at different times of the year to break the brood cycle and use that as an added mechanism to control Varroa mites, as well as potentially keep some costs down, looks like. So other areas of research beyond pests and disease, we've funded quite a lot of research to understand the impact of different agricultural chemicals on bee health. The research that we have ongoing in that area is with Reed Johnson at Ohio State. And we have used that research to really increase our messaging to farmers and pest control advisors that farmers hire, pesticide applicators, to increase our messaging around not using insecticides during the bloom season. There are no significant insect pests in almonds this time of year. So we have seen, in Reed's work, almost a 70% reduction in insecticide use in almonds in the last few years since we released the Best Management Practice Guide for almonds. So that's a great win. But we're now increasing our messaging around caution around use of adjuvants, which Reed has shown there are some categories of adjuvants. Other researchers have shown that as well so increasing evidence that adjuvants can pose a risk to bee health. So as we led up to bloom season this year, we have live bees in our orchards right now, we've been very directly messaging to growers and pesticide applicators to be cautious and not add adjuvants unless they're absolutely called for on the label. So, Johnson's work as well as others before him had been really fundamental to our development of the Best Management Guide for bee health in almonds. And that's a big part of the outreach that we do to growers to make sure they are communicating with beekeepers, making sure whoever they hire to work in their orchards, for example, people who might be applying fungicides, are using the best practices of applying those late in the day or in the evening when the bees are no longer active in the

orchard, making sure that they're following California state laws and so forth. So that research really has been the foundation of our outreach to growers and beekeepers to make sure that both parties are creating a positive environment for both pollinating almonds and making sure bees stay healthy in our orchards.

Jamie 18:10

I think this is a perfect model for how problem-solving should occur in agriculture. You've got an industry that says, "We've got these issues that we need to address. And we're not just going to tell you to go address them, we're actually going to support you addressing them, fund research." And not only do they fund the research, but when the research is done appropriately and correct, they believe the research, and they change their management practices to reflect the findings of that research. And then you get things like 70% reduction in pesticide use, for example, or whatever all the benefits that you just noted were. I think this is a great model for other industries to follow. I think this is a good example. And I certainly applaud the California Almond Board for doing that.

Guest 18:55

Thanks. Through groups like the Honey Bee Health Coalition, we've also been working with some other commodity groups and trying to really use that model of developing best management practices and doing outreach to our growers to make sure that we all work toward having a healthy environment for both managed bees, honey bees, as well as native pollinators. A lot of the same practices will benefit native pollinators as well. And I would say that's a new area of focus for us that we're ramping up as well, trying to make sure that not only do we have a great environment for honey bees, because we rely on them, but also for native pollinators during the rest of the growing season. But those bees leave our orchard in another month or so, so we want to make sure they go on to healthy places after they leave almonds. We are only one stop in the life cycle of a hive.

Jamie 19:54

Yeah, I just want to point out to our listeners before Amy asks you another question, but I want to point out to the listeners how many times you'd mentioned partners, collaborators, the Honey Bee Health Coalition, the beekeepers, government, industry, almond growers, you mentioned Project Apis M, the National Honey Board, American Beekeeping Federation, and others. The reason I think this is important is because we're not going to address these big issues by ourselves. It has to be done collaboratively. We have to build a level of trust between the organizations, the groups and industries. We need to find common goals, and we need to address those common goals head on, and I think this is best done as a group. We get synergy that way. I think we actually find answers and solutions that way. So I think this, again, I've said it before, just recently, but I think this is another good example of a model industry. I kind of chuckle because it's the almond industry. I'm grateful to the almond industry for including us in this process because, certainly, there are lots of other crops that are dependent on honey bees, and in our own industry, we could probably do better as an industry to support research and outreach as well. But anyway, Amy's got some burning questions for you.

Amy 21:01

Yeah, I do. I do have a question. And it's basically, well, we've been seeing a lot on social media about how almond milk and the almond industry is actually worse than we think it is. So I wanted to talk to you about that. And I didn't know if it was a touchy subject or not, but I'm seeing articles saying, well, your

almond milk is killing all the bees, and it's really bad, and commercial beekeeping and migratory beekeeping is horrible. And so can you talk to us about that a little bit?

Guest 21:30

Sure, well, we do take really seriously how consumers perceive the quality of almonds, not just in terms of how good they taste and how good they are for you, but also the quality of how they're grown. So we do take a lot of responsibility for bees and for making progress on continuing to improve the way we grow almonds. But I think the accusation that sending bees into an almond orchard is like sending them into war is, frankly, a gross overstatement. I mean, we have good data that shows that we have significantly improved the quality of the environment for bees when they come into almonds. As I stated earlier, since releasing the Best Management Practice Guide in 2014, we've seen almost a 70% reduction in insecticide use. We have the voluntary program we call the California Almond Sustainability Program, and this is a way for growers to assess the sustainability of their practices. And we have almost a quarter of the industry participating in this program, and those growers report that they are following these bee best management practices. So if they have to use a fungicide, they apply it late in the day, in the evening, even sometimes at night, so as to avoid exposure to those bees. So, the evidence is that we're making great progress and that, by and large, bees flourish when they come to almonds. Many beekeepers report that their hives are much stronger when they leave almonds than when they go in at the beginning of the year. Almond pollen, we know, through research, provides really good nutrition for bees. And so that's part of how these hives come out stronger from an almond orchard, not weaker. And I think you made the point, Jamie, that we all have to work together because bees are only in the almond orchard for maybe two months out of the year. Where they go from there needs to be an equally healthy environment. So we're really trying to work through these national partners, whether they're beekeeping organizations or research organizations, trying to work with other commodity groups to make sure that when bees leave almonds, they go to a good quality environment. There's a lot of research showing that access to good nutrition and forage when they are in other parts of the country is really critical to having healthy hives. Of course, we know that Varroa mite can come up at any time of the year so that's an area where we need vigilance by beekeepers. So I think we take responsibility for bees, as you've noted. We are very much engaged in this industry as a key part of our stewardship of resources. And so we take that responsibility quite seriously and I think we've shown a lot of progress in improving and making sure there's a healthy environment for bees.

Amy 25:01

Yeah, so I do want to acknowledge some of the listeners that we have and some of the followers and some of their questions. So I do have just a couple of questions for you from the audience. So you've kind of touched base on this, but what steps might beekeepers put in place to keep farmers from applying fungicides or herbicides or pesticides during that pollination period?

Guest 25:24

Yeah, so we approach this a couple of ways. One is that here in California, there are two laws that are aimed at making that communication better. So in California, beekeepers are mandated to register the location of their hives. When they bring them into the state or if they are residents in the state, they have to keep an updated location. And they can do that through calling a County Ag Commissioner, or we have supported an app and a web-based application called Beeware. That's done through a commercial software provider. And Beeware makes it easier for beekeepers to register their hives and

comply with that state requirement. On the other side of the equation here in California, pesticide applicators, whether that's the farmer themselves or someone they hire, are also mandated by law to give beekeepers 48 hours notice if they're going to apply a chemical that could have negative impact on the health within a one-mile radius of those hives. So both sides, the beekeeper and the farmer, are required by law to communicate. We also, as part of our best management practices and all the outreach we do to growers, really emphasize this communication chain. That's absolutely essential. There has to be good communication when a grower signs the contract with a beekeeper or shakes hands and agrees on a fee, if that's what it is, to really communicate what their plans are. If they already have mapped out what their orchard management is going to be, excuse me, during bloom time, they should really communicate if they plan to apply any chemicals. So we really emphasize that communication chain, again, between a farmer, a pesticide applicator, a beekeeper, they all need to be communicating with each other down to who's going to change the bucket of water that we advocate the farmer provide next to those hives to keep the bees well hydrated. Someone needs to go in and change that water after any chemicals are applied. So we have quite a lot of specific guidance that emphasizes that communication as well as some state laws here in California that are aimed at ensuring we don't get pesticide application on hives.

Jamie 28:00

Sure. Great. Well, let me ask you another question that was posited by a listener. So we've been talking a lot about honey bees, and rightly so because they're the coolest bees on planet Earth. However, one of our listeners asked, do other bees or other pollinators pollinate almonds?

Guest 28:19

Certainly. There are native native bees and native pollinators here, bees in particular, here in California. However, they're not a major part of almond pollination. I think some of the native bees don't become active as early in the year as honey bees do, depending probably on where they are in the state. It's a very long state, it has quite a bit of climate variation. And the sheer numbers of almond trees versus native pollinators are such that we do rely on honey bees to pollinate the crop. But we are very aware of the importance of native pollinators not just to almonds, but to the environment and ecosystem more broadly. As part of our accelerated push to create a good environment for all pollinators, we are now really emphasizing to growers the importance of planting cover crops and hedgerows to provide additional forage and habitat for native pollinators. So we have been talking with the Pollinator Partnership and Project Apis M and others in the conservation community about how we could work together to expand habitat and forage for native pollinators throughout the year, not just the time that almonds provide great forage for honey bees early in the year. So we are very interested in using our archers to try to expand opportunities and habitat for native pollinators as well.

Jamie 29:53

Sure. And that's kind of a consistent thing that we're seeing with a lot of other crops. We know wildflower plantings have been very popular, especially in the last decade or so. We were involved in some work five or 10 years ago. We don't do quite as much of that in my lab anymore. But certainly it's been an emphasis of research programs around the country, and there's a lot of papers coming out about that stuff. Well, Dr. Josette Lewis, I really appreciate you joining us. You have been a wealth of information on commercial beekeeping and almond production and the interaction between the two. Dr.

Josette Lewis is the Chief Scientific Officer for the California Almond Board. Thank you so much for joining us on Two Bees in a Podcast.

Guest 30:32

Well, thanks. It was a great opportunity. Have a great day from the past here on the west coast to those of you in the future on the east coast.

Jamie 30:44

Absolutely.

Amy 30:45

He got that joke from me, by the way.

Jamie 30:46

Yeah that was a last week joke but I was impressed with Amy, so I kept that in my pocket. Look, this is going to be an incredibly popular topic. Is it okay if I reserve the right to come back and interview you in the future?

Guest 30:58

You bet.

Jamie 30:58

Well, thank you so much.

Guest 30:59

There's always more to talk about with bees.

Jamie 31:01

Thank you. Appreciate that. Thank you now.

Honey Bee 31:07

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

Amy 31:16

Hey, everyone. We're here with Sarah Stern from Concord farms, and Jamie, I'm gonna let you guess the accent. Say that.

Jamie 31:22

Well, that's-- guess the accent.

Amy 31:24

Alright, speaker, Sarah. Say that.

Guest 31:27

Morning everyone.

Amy 31:28

Good morning. Say accent.

Guest 31:31

Accent.

Jamie 31:32

Okay.

Guest 31:32

I don't think I have an accent. I feel like people on TV talk like me.

Amy 31:40

Sarah is from Sylvan, Wisconsin.

Jamie 31:40

They don't. You didn't let me guess.

Amy 31:46

Oh my gosh.

Jamie 31:47

Well, it was a little unfair anyway. I knew in advance where she was from. However, you sound like you're from Wisconsin. I was in Wisconsin back in November of 2019, so just last year for the listener's sake. But I'll say the year because I don't know when you're actually listening to this podcast. But I was there and everyone sounded like you, everyone from Wisconsin sounded like you. Let's put it that way.

Amy 32:07

I will say, I'm very jealous. I'm from Kansas, and I have no accent. So I wish I were you guys. Alright, let's get back to the podcast and questions that we have. Sarah is a commercial beekeeper and the owner of Concord farms, and I actually heard her during a panel at the American Beekeeping Federation. The panel was about next-generation beekeepers. And I want to say that was probably the most useful panel that I've ever been to, as far as commercial beekeepers and beekeepers in general. I know that I wasn't the only person that felt that way. So we really wanted to bring you on to the Two Bees in a Podcast just to ask you some questions about migratory beekeeping, maybe some of the logistics. And so I guess my first question for you, Sarah, is how did you get started in commercial beekeeping?

Guest 32:57

So I married into this lovely operation. By trade, I'm actually a registered nurse. So that's what I did before I became a beekeeper.

Jamie 33:05

It's not too late to go back.

Guest 33:08

But yeah, kind of an unlikely scenario. But when I met my husband, he took me out into the yard pretty much immediately. And since my background, I came from a farming background growing up on a hobby farm, and I just really kind of took to it right away. I found the bees very interesting. So it was a pretty natural transition for me to leave my job as a nurse and dive headfirst into commercial beekeeping.

Jamie 33:42

So you said this is a family business? How many generations has your husband's family been doing it or is he the first generation?

Guest 33:49

We're actually first-generation beekeepers. When it started, it was my father-in-law and my brother-in-law. It was a hobby of theirs, and my husband actually wanted nothing to do with it. He thought that was the dumbest idea. Why would you want to keep honey bees? And then, as they had them for several years, he really saw the value in having them around. So when his brother lost interest in them as a hobby, he picked it up and decided to keep the bees on their property and he just really has the mindset that if you're going to have 10 hives, you might as well have 20, and if you have 20, you might as well have 100. At this point, we manage about 1600 colonies. Definitely, we've grown fairly rapidly. We started our business, he incorporated his business in 2007 but wasn't doing it full-time until 2012. So over the last eight years, we've grown it from 400 hives to the 1600 that we're currently managing.

Jamie 33:51

Wow. Wow. Is it just the two of you managing the bees or do you guys have staff as well?

Guest 35:00

We have part-time employees that help us out. But as far as full-time, it's just him and myself.

Jamie 35:08

I've worked with commercial beekeepers for a very long time, and they will all tell you slightly different answers. But from my outside perspective, the average commercial beekeeper, by himself or herself, can manage somewhere between 700 and 1200 colonies. I've seen an individual manage as many as 1200, and then down. So I was thinking with the two of you, you probably needed a little bit of part-time help to be able to manage those 1600. It's interesting.

Guest 35:34

Yeah, especially because the honey producers aren't the only thing that we have going on. We also do a queen program all summer long, too.

Jamie 35:43

Wow.

Guest 35:44

So that's kind of separate from the 1600 that are the production colonies.

Jamie 35:51

It's neat that this kind of came up as a hobby of a relative rather than family because usually these commercial beekeeping groups are dynasties, right? It's someone whose kids kind of reluctantly take it over and then love it and embrace it. And then their kids reluctantly take it over and love it and embrace it. I think these days, we're getting a lot more commercial beekeepers like like you guys where you're coming in from the outside and growing your operations. In many ways, I think that's cool because you don't have any of the preconceived notions about bee management. I think that that allows a novel look and a novel approach to commercial beekeeping.

Amy 36:26

Yeah, can you tell us a little bit about your business strategies? You talked about queens, but you guys are migratory? Is that right?

Guest 36:35

At this point, we still are migratory. So we have been migratory since I came into the picture of this. In 2012, when I met my husband, he was shipping his bees to Arkansas to overwinter them and then he was shipping them back to Wisconsin to do honey production for the summer. At this point, we've kind of shifted our focus a little bit in hopes to eventually become unmigratory, which is kind of another unheard-of facet in commercial beekeeping these days. At this point, most people are trying to figure out how to live the migratory lifestyle or how to become migratory. They're seeing other commercial beekeepers doing that and being successful with that. So I feel like a lot of people, especially sideliners, they are definitely kind of throwing that out there as an option. How do I get into that migratory lifestyle? And how do I get my bees moving across the country? So I kind of diverged there but I'll go back. So currently, we run our bees in Wisconsin for honey production. We do our queen program here. We're currently overwintering a third of our operation in Wisconsin. The other two-thirds goes to California at this point to do almond pollination, and then they come back to Wisconsin in March for us to get started again with our honey season here. So we've cut out one state. Like I said, we used to go to Arkansas to overwinter there. That was our main objective. And then when that went really well, we started producing nucs that we sold both in Arkansas and Wisconsin. So right before we sold our Arkansas operation, we were making about 3000 nucs in the springtime so that we could have the bees for ourselves but then also sell about 1000 nucs.

Jamie 38:50

So you were pollinating in California, you're honey producing, you were making nucs, you're doing queens, let's talk just briefly about the migratory part before we transition to why you're moving to a stationary operation. So you're relatively new, you're out pollinating almonds in California, was it difficult to get into almond pollination? I mean, how did you make that happen?

Guest 39:13

Yeah, no, it was not difficult at all. We made some connections at an ABF conference with some other beekeepers who were currently doing almond pollination. They run a very successful operation. Right now, they have about 12,000 colonies. So our first year of almond pollination in California, we ended up using the same broker that they did. And so that first year that we went out to California to do the

almond pollination, we shipped our bees from Wisconsin to Arkansas, we graded them in Arkansas, which was really nice because we could cherry-pick the best of the best to send to California. They shipped out of Arkansas in the very end of January, went straight into the orchards where they were going to do the pollination, they were there for about six weeks, and then they shipped them back to Arkansas, so that we could split them and make our nucs and all of our divides there. So that route worked really well, because again, we were able to grade them in a warmer temperature, we could really see what we had so we knew that we were going to get paid pretty much on 100% of that load because they were going directly into the orchard right at the time of the pollination. So they weren't sitting in a holding yard, they weren't sitting in a wintering shed. We've done pretty much every scenario for almond pollination. We did two years where we shipped them out of Wisconsin to Idaho to sit in the sheds. Then they would go from the overwintering sheds in Idaho straight into the orchards and get placed for the pollination. And then when that was done, they would either head back to Arkansas so we can make our divides, or they would head to Wisconsin from there. And then this year was our first year that we shipped right from Wisconsin to California, and they sat in a holding yard for about two months. And then they're now in the orchards right now getting ready to do the pollination.

Jamie 41:27

So I think it's all really neat. I mean, you guys jumped right in. Amy was telling and we've kind of teased this a little bit, you're talking about transitioning away from migratory beekeeping. So when I talk to a lot of commercial beekeepers, they almost treat California as business insurance, like you got to go make some money because if the rest of the year you fail to make nucs or fail to get a good pollination contract with watermelons or you fail to make honey, you've at least got California, right? So you diversify to spread the risk. But you guys are talking about transitioning to stationary. What's some of the reasoning behind that?

Guest 42:03

Yeah, so there are a bunch of factors that play into that. For us, most importantly, it's our family. We have two small children. They're three and five. So they're going to be starting school here shortly, and we have aging parents also who are getting to the point that they could use a little bit more help. So that, for us, is our number one reason why we want to get off the road. It helps I actually like my husband, so I like having him home. That's sort of a novelty, I guess. That's one of the things for commercial beekeepers, it can be challenging in that respect if you enjoy your spouse. Typically, you either tend to travel together if you're going to live that migratory lifestyle, you pretty much pack your whole family up and everybody goes if you like each other. If you don't like each other, well, that's even easier. One of you goes and one of you stays home. And that seems to work for a while for people. But I don't know how well that works long-term for everybody.

Jamie 43:14

Well, it's funny, because when I was listening to you answer all of our questions at the beginning of our interview, the whole thing that kept going through my mind the whole time is why don't you just move to Arkansas? You cut out Wisconsin, and that would solve. No offense to Wisconsin. It's a beautiful place.

Guest 43:29

That would have been the easiest answer, truthfully. From a business perspective, that's exactly what we should have done because we could have run a whole school year in Arkansas, and then just come

to Wisconsin for the summer to do honey production. And from a strictly business standpoint, that is absolutely what we should have done. Business isn't always that cut and dry, making that decision. So again, we had other factors that played into it. Our family that's here in Wisconsin, I mean, this is where our home is, and just kind of deciding where we wanted our kids to go to school definitely was another important factor.

Amy 44:16

All right, so we talked about some of the challenges that you have with the migratory beekeeping operation that you guys have been doing. What are some other logistical challenges that a beginner migratory beekeeper might have? Do you guys --

Guest 44:34

Some of the things that you definitely need to think about if you're planning on becoming migratory or how to streamline your migratory operation, housing is a big one. Are you going to rent? Are you going to live in a hotel room? Are you going to buy a place in the additional states that you're traveling to? Certainly, depending on how long you're there, that's going to play into it. How many hives, that changes with the scalability too. If you're only shipping two semi-loads of bees somewhere, that's very different than 10 loads. Certainly, a lot of the bigger operations are going to have properties in the different states that they're going to just because they need a place to store equipment, trucks, things like that. Labor definitely plays into the migratory beekeeping. We've found with our crews, so, in our operation, we've only hired domestic labor, meaning residents of the US. There are a lot of operations that certainly employ people from other countries through the H2A program. We haven't gone that route. So we found with our domestic labor that two weeks is about the maximum time that any of them want to be away from home. So you kind of have to logistically plan that out, that after about two weeks, you have to sort of figure out a way for them to get home, even if it's just for a long weekend. It seemed that their morale and even just their work, you just wouldn't get much out of them anymore after two weeks.

Jamie 44:55

Well, that makes sense.

Guest 45:11

It just didn't even pay to keep them there because they really weren't going to pay attention to what they were supposed to be doing. So, that's a consideration for us. The other main reason that we're trying to become unmigratory is the DOT regulations. Unfortunately, we have a lot of exemptions when it comes to beekeeping and the DOT, however, the challenge is that each state has its own regulations and rules. And anytime that you get pulled in for an inspection, you're subjected to that DOT officer's interpretation of the law. So that can really vary from officer to officer on that. We've been pretty fortunate, we haven't had any major issues with it. But trying to stay one step ahead of it and staying on top of all of the regulations has definitely proven to be a challenge. There's a lot of expense in trucking your bees all over the country. And that's something that people have to decide, is that something you're going to do yourself, are you going to hire it out? If you are hiring it out, you need to definitely make sure that your truck driver carries the insurance to cover the bees in case there's a rollover or things like that. So those are definitely big considerations. One of the other things that we've run into from state to state is making sure that your insurance covers you in both states. So it can be a little bit

challenging if you don't have an actual business address in each state. So for example, we were renting a house in Arkansas while we were there, it was way up on a bluff, kind of in the mountains, and we didn't even have a mailbox. While it had an actual address, we couldn't really use it as a physical business address because, truthfully, that really wasn't where we were running our business out of. We were running our business out of farm fields in about 30 different locations, and insurance agents don't exactly understand that. They don't they don't really like to insure that sort of operation. They want a physical location. And just different things like that. So there's some considerations with that, and then also just making sure that you're paying your taxes in both states. So we've had employees that were based in Wisconsin that traveled to Arkansas. We had employees that lived in Arkansas and were just based there. So you have to pay your taxes to those different states, depending on where they're working and what locations they're out of. Well, I don't know, we both want to ask you a question. I want to make a comment, you can ask the question.

Amy 49:12

Well, I was going to make a comment too.

Jamie 49:14

Let's see, Sarah, this all sounds incredibly difficult, right? Keeping up with all of that stuff, managing all of that stuff, knowing that you've got colonies in this state and this state, making sure that your labor is able to get home, making sure that all the rental addresses are appropriate and that your business license is up, and then you got to have insurance, managing your trucks, it just sounds incredibly complex. I mean, so how do you manage all that? I guess is my question. How do you deal with that? It seems like it'd be something that keeps you up all night every day.

Guest 49:49

It doesn't, actually. Just one day at a time, really. I mean, it certainly was something that I knew nothing about. I don't have a business background. So I had to really research into it and ask a lot of questions. Truthfully, that's the most important part is asking a lot of questions, especially when it comes to insurance and risk management. I would go through scenarios with my insurance agent to make sure that the things that I wanted covered were covered. Certainly, she's great because she let me know, I have the willpower to do whatever I want for my business, it's her job to determine whether or not that's going to be covered from an insurance standpoint. And so we would just run through scenarios on what happens if my truck breaks down or gets into an accident in Missouri, as we're driving through? Am I covered? Am I not covered? Things like that. So we would run through some of those scenarios, just to make sure that we had the coverage that we needed. So yeah, one day at a time, one issue at a time, that's how you go through it, because otherwise, it's going to overwhelm you, and you're never gonna get started with it.

Jamie 51:11

Yeah, I mean, that's pretty incredible. And what's funny to me, Sarah, is that we haven't even discussed managing bees. This is just the logistics of being a migratory beekeeper. That doesn't factor into the issue that bees die, or they need food, or there's this massive recruiting event that needs to occur. And what do you do about swarm control? And how do you mitigate impacts of pesticide exposure and all of this stuff? That's the management half of it. So there's the management of the bees, but the

management of the business, as you've discussed, is equally important and daunting. So that's interesting to hear you talk about all that.

Amy 51:44

Yeah, well, my comment earlier was just gonna be that we could probably have a segment on every single thing that you just talked about, like, a whole segment on the H2A program.

Jamie 51:57

We should. We should in the future.

Amy 51:57

Yeah. And using a broker versus not using a broker, we'd love to have you come back, and maybe talk to us a little bit about that. But you've mentioned insurance quite a bit. And so I was wondering if you could tell us about the different insurance coverage, because I know you guys spoke about this at the panel. I found that information pretty useful.

Guest 52:17

Yeah, so for us, we have three separate insurance policies for our business. We have a business policy that's going to cover, pretty much, it's a broad policy that covers a majority of the aspects of the business. So it covers the actual location, meaning the building that we work out of, it covers me for product liability. So the honey that we sell and the candles that we sell, it covers our liability on the bees themselves. So if somebody is stung on our property and have an allergic reaction, it would cover the liability side of that. The other thing that's important with our business policy that most people don't really think about, maybe, or some people don't, that they would want to is when it comes to commercial beekeeping, we have this influx of honey at one time of the year. So for us, we usually try to wrap up extracting by Labor Day, so in September. My honey stores that are sitting inside my building in September are very different than what I might have leftover, say, in May or June right before we're getting ready to extract. So my business policy is tailored so that I'm covered both at the peak of that, and then also it kind of prorates it knowing that there's not that huge amount of honey in my warehouse 12 months out of the year, but maybe for three or four months out of the year. So just knowing your business and knowing if you have that big store, or you don't, making sure that you're covered, because certainly, if my building burns down in October, I want to be covered for all of the honey that I had for that whole entire year. We also have auto policies on all of our vehicles. And that's something that if you're doing a migratory operation, and you're working in multiple states, a lot of times you're gonna have to have different policies, at least in the main states that you work in and that you're based in. And so sometimes, you sort of have to shop around. Some people might end up taking out policies from two different companies because their company that they have in one state doesn't even offer insurance in the second state. For us, our insurance agent just got licensed in both states and we picked a policy that would cover us in both states. So that particular company operated in both states but that isn't always necessarily the case. So you do have to kind of look into that to make sure that you're covered in multiple states with that. At that panel that I spoke on, we actually had a gentleman stand up who, unfortunately, was hit by a drunk driver while he was moving bees one night. And he said that, and this was a great consideration for people, he said, "Make sure that you're underinsured or non-insured coverage is really high." As a commercial beekeeper, we move bees and we move them at nighttime. So that's certainly a risk that is out there. He unfortunately, too, he's not the only gentleman

that I know that was hit by a drunk driver while moving bees at nighttime. So that's definitely something you want to look into, making sure that your uninsured coverage is high enough that should you be involved in an accident like that, you're covered for that. And then we also carry a work comp policy. Most states are going to have agricultural exemptions up to a certain dollar amount or employee number. So for the state of Wisconsin, I think it's over 10 employees or over \$20,000 in wages, that's when you definitely have to carry work comp. We don't fit those qualifications. But we felt it was important for our business that we wanted that work comp policy in place because our employees do help machine out bee boxes. So they're working with saws and different machines in the woodshop, they're gonna be climbing up on semis and strapping them down, sometimes doing it in the rain, sometimes you're doing it in the snow, it gets slippery up there on the tarps, should they slip and fall off of there, I want --

Jamie 56:54

I was going to say, Amy, we should go open a commercial beekeeper business. Sarah, you make it sound so great.

Amy 57:01

Sounds so fun.

Guest 57:03

I know. But this is the not fun stuff that is pretty important because if you don't think about those things, you're really opening yourself up to a liability. Again, yeah, you can run without it. You can do whatever you want.

Jamie 57:18

But the risk is great.

Guest 57:20

If you really love your business and you want to stay in business, you probably need to think about some of these things.

Amy 57:26

All right. Well, thank you so much. We're gonna have to have you definitely come back for another segment. But what I think we want to do, we have questions from our listeners, and so we'll take a real quick break. And then we'll go ahead and ask you a couple of questions that we have from the audience if you're okay with that.

Guest 57:41

Yeah, that sounds great.

Amy 57:43

Awesome. All right, listeners. We'll be right back. Welcome back, everyone. We are super excited about the question and answer. In our past segments, we've basically been doing a Chump the Stump, and that was typically Jamie. But now we're gonna ask -- Do you not mean Stump the Chump? What did I say?

Jamie 58:07

You said Chump the Stump. What would I be doing to a stump if I chumped it?

Amy 58:12

You know what's funny? I was just talking about how awkward I was. So now you all know how my brain works.

Jamie 58:17

Now we're just confirming it.

Amy 58:20

Okay, question and answer time. So we are here with Sarah Stern. We're back from our last segment with her from Concord farms in Wisconsin, and so we have four questions from the audience. And I'm still just cracking up about what I just did and very embarrassed about it. But we're just gonna go ahead

Jamie 58:38

and get right into that stump chumpin'

Amy 58:39

And get into the podcast. All right, so the first question, Sarah, that we have, do commercial beekeepers do preventative treatments for American foulbrood?

Guest 58:53

So I can't really speak on every operation. I can tell you that we don't. We actually haven't even used antibiotics in our own operation in the last five years, I think.

Jamie 59:05

So what do you do when you see AFB or if you see AFB?

Guest 59:11

If we were to see AFB, those hives would actually be destroyed. I just don't even take the chance with that, and then any additional hives that would be in that yard would actually be quarantined for probably at least four weeks to make sure that we weren't seeing signs or symptoms of it in any other hives. It's just not something that we mess around with. So if we see that, unfortunately, those hives will get destroyed on the spot pretty much immediately. And it is something we test for and we look for when we inspect every hive, but it's not something that we treat prophylactically.

Jamie 59:51

I actually personally applaud that approach. I think that's really good. So that's cool. So let me ask the next question, then. This, again, came from our listeners. So what government programs are available to help beekeepers, especially commercial beekeepers, if there are losses. So you lose a large percentage of the bees that you're managing, are there government programs available to help in those scenarios?

Guest 1:00:13

There is a government program that's called the ELAP program, and it's something that you could certainly look up if that's a route that you're interested in taking. We don't participate in the program. So unfortunately, I can't really speak on the benefits or the process of it. But there is a program out there. It's called the ELAP program. So if you're interested in finding out more information, feel free to look into that further.

Jamie 1:00:39

Yeah. For you listeners, we actually plan to, in the future, have someone from the ELAP program on Two Bees in a Podcast so that we can talk about this with them as well.

Amy 1:00:47

Yes, absolutely. So the third question that we have for you. So this was actually asked by multiple people. And I think there was some sort of National Geographic segment that just came out. The first thing they were talking about was about theft in the bee yards. So is theft a problem for you guys, for your business?

Guest 1:01:06

For us, personally, it has not been an issue. We haven't run into any issues for commercial beekeepers as a whole. The biggest place that you're going to maybe see that theft is in the almond pollination. So that's where they're running into it. It just has never been an issue for us.

Jamie 1:01:30

In Florida, where we're based, there's cases of theft every year. The theft of bee colonies or bee equipment kind of has to be done, usually, by beekeepers.

Amy 1:01:45

Yeah, what random person would go?

Jamie 1:01:46

Yeah, so often, that's the accusation at least, right? Because that would be who's interested in it. So we see that here in Florida. I've heard of other beekeepers experiencing this as well. So it's really good to hear that you guys don't have to encounter that.

Guest 1:02:01

Yeah, so far, thankfully, we've best one issue we haven't had to deal with.

Jamie 1:02:06

It seems inevitable. But hopefully, you guys can make it through without it. So let me ask you our fourth and final question, again, that came from listeners of Two Bees in a Podcast. It's kind of a different question because it's its self answering, right? Are you concerned about pests and pathogens while transporting bees? Of course, you're concerned about pests and pathogens in bee colonies. But I think this listener is specifically asking about during the transport process, are pests and pathogens a big problem while bees are physically moving from, in your case, Arkansas out to California or Wisconsin back to California or something like that?

Guest 1:02:42

So specifically in the transportation of them, no. All of the hives get looked at thoroughly before they leave and get inspected to make sure that they're not. Especially for pathogens, we're primarily looking for, obviously, pests. I mean, are bees ever 100% mite free, I mean, no. They're going to have some of that in there that they're just carrying with them inevitably. But for us during the actual transportation, truthfully, no, we're really not concerned about pests or pathogens. And even when they get to where they're going, I know a lot of people ask, "Well, aren't you concerned about that in California? Because if 80% of the nation's bees are sitting in there, I mean, that's a whole cesspool of everything, right?" And my answer to that is that if you have really healthy bees that you're sending out there, more likely than not, you're going to get really healthy bees coming back. If you don't have healthy bees, well, don't expect much of anything but your equipment back.

Amy 1:03:56

That gives me hope.

Jamie 1:03:58

Well, I mean, obviously, you should prepare your bees to move because moving is a stress. And I'm curious if there are any diseases or pests that would be prone to be a problem during transport if they weren't managed prior to transport. And I mean, I guess Varroa could be an issue, but it just seems like transportation won't necessarily set off a pest or pathogen. But, I don't know, this is an area of active research at the moment. So it's neat Sarah, to hear your answers. I appreciate you being willing to take listener questions.

Amy 1:04:32

Yeah, thank you so much, Sarah. Again, everyone, we have Sarah Stern from Concord Farms. We really appreciate you taking your time and answering some of these questions. I know a lot of beekeepers, especially sideliners, are trying to figure out what to do next and what steps to take to become a commercial beekeeper. So we really appreciate having you here. I'm officially the most awkward person in the whole world.

Jamie 1:04:56

Hey, Sarah, you've been a great guest. Hopefully, we can come back to you in the future.

Siri 1:05:01

Okay.

Jamie 1:05:02

Sorry, I said, "Hey, Sarah," and, "Hey, Siri" picked up on my phone. Siri, stop it. I'm talking. Now we gotta wait till Amy quits laughing.

Amy 1:05:16

Just mute my mic. Okay.

Jamie 1:05:18

Hey, Sarah, you've been a great guest. I really appreciate you joining us. Hopefully, we can come back and have you on again in the future.

Guest 1:05:25

Sounds great. Yeah. If there's other questions that people want to know about, I'm happy to chime in again.

Jamie 1:05:31

Perfect. Thank you so much.

Amy 1:05:37

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 1:05:52

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!