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SPEAKERS

Stump The Chump, Guest, Jamie, Amy

Jamie 00:10
Welcome to Two Bees in a Podcast brought to you by the Honey Bee Research Extension Laboratory at the University of Florida's Institute of Food and Agricultural Sciences. It is our goal to advance the understanding of honey bees and beekeeping, grow the beekeeping community and improve the health of honey bees everywhere. In this podcast, you'll hear research updates, beekeeping management practices discussed and advice on beekeeping from our resident experts, beekeepers, scientists and other program guests. Join us for today's program. And thank you for listening to Two Bees in a Podcast. Hello, everybody, and welcome to another episode of Two Bees in a Podcast. Today, Amy and I are joined by a very influential commercial beekeeper here in the US. We thought it would be great to interview him, to introduce the world to commercial beekeeping here and talk about the different facets of his business. And that gentleman is Ray Olivarez, who is the owner of Olivarez Honey Bees incorporated in Orland, California. Ray, thank you so much for joining us on this episode of Two Bees in a Podcast.

Guest 01:19
Well, thanks for having me.

Jamie 01:20
Yeah, you and I have bumped into each other over some recent meetings. I've enjoyed my discussions with you. I really enjoy having commercial beekeepers on our podcast because I really think that's what beekeepers, our listeners, want to hear. We interview a lot of scientists as well, and they love that, but they really want to hear those nuggets of truth from commercial beekeepers who've been successful. And we're going to talk to you about queen production and pollination and package production, but before we do any of that, Ray, I think our listeners just want to know you. So could you tell us a little bit about yourself and how you got into beekeeping in the first place?

Guest 01:52
Basically, I'm second generation beekeeper. My dad started working for some beekeepers here in the Orland area, Northern California, where we're at. We're about two hours north of Sacramento, just to give you an idea where the area is. But he started around 1965, and then, in 1968, bought a beekeeper out, and was a beekeeper for many years. I was actually allergic to bees, but when I was about 18, my body chemistry changed, I guess, and no longer allergic to bees. I used to do all of the grunt work, building packages, boxes, wiring frames back then, so they kept me away from the bees. Anyway, in 1983, we had what's called an El Nino, and we had an El Nino event this year, and my dad lost all of his bees in the flood because we were pollinating almonds, or almonds, however you want to pronounce it, and never really recovered. I was going to school at the time to be an ag teacher, came home to help them, eventually bought another beekeeper out, a small beekeeper, and struggled to grow the business for a while. And then, in 1987, my wife and I, Tammy, who's, well, a very important part of OHB in the growth in the history of OH Bees. We started Olivarez Honey Bees and grew it from there.

Amy 03:11
So Ray, like Jamie mentioned, we love hearing about commercial beekeepers. Again, it's not that you just do one thing. Commercial beekeepers dabble in a lot of different things, and you've been very successful in the different facets of beekeeping that you're a part of. And so I think how we'll take this interview is we'll go from, let's discuss a little bit about queens and your experience with that, we'll talk a little bit about pollination. I know you mentioned almonds, however you want to call it, and then we'll talk about packages. So let's kind of start with queens and just discuss that piece of your business. And so I guess I'll just move on to just asking, what types of queens do you all raise?

Guest 03:49
When we first started our business, we were primarily Italian, Northern California, if you go back into the 50s, the 60s, the 70s and early 80s, and maybe even earlier than the 50s, the primary source of revenue for Northern California beekeepers was packaged bees to Canada. We didn't supply a lot of packages in the US. Again, it was mostly Canada. And back then, they would gas their bees off every fall, clean up their equipment, and then each spring, they would come to California and pick up a two pound package with the new queen and repopulate their hives and make their honey. Those bees were called mortgage bees. Most of the beekeepers back then in Canada were not real big beekeepers. They had cattle, grain, farmers and bees, and the bees, they'd make enough honey to pay the mortgage on the farm. So that ended in 1987 because the border closed because of Varroa mites and other things. But, Italian bees, they brood a little bit bigger. They're a little bit easier to steer in the direction you want them to go if you want to stimulate them, build them up, make them real broody, lots of bees. So that's what you need is lots of bees when you're shaking packages. You could do that coming out of the almonds. You have supercharged bees that have turned over all the winter bees. So we have a lot of fresh young bees, and they're going to town. So you need bees that you can shake and get 6, 7, 8, pounds of bees every time you shake them, every 14 days. As the industry changed and time changed, pollination, of course, you want bees that you can stimulate and grow. And Italians

have a tendency to, again, to be a little bit easier to manipulate. But we also started reaching out, the more hives we got, because the demand for bees, for almonds, we had to get out of California for the summer and we started going to Montana. There's these ideas about bees. There's a lot of merit to darker bees in colder areas, Italians in warmer areas. I've always felt that the bees are as good as the person driving the car. You just got to learn what you need, how to overwinter them, how much honey, things like that. So if you run a certain type of bee in a certain area, and you're successful, that's what works for you. And it could be Italian, Carniolan, or Saskatraz that is relatively new in the last 10-12 years. So we run Italians, we raise Carniolan and Saskatrez, and we're also working with Randy Oliver, his breeding stock right now. The best thing I could tell anybody is just go to Randy's website. I think most people in the world know who Randy Oliver is. Read about what he's doing, and what we're finding is that it's a lot harder than we thought it was going to be. We're also working with PAM, Project Apis mellifera. We're hosting them in Hawaii now, with the VSH, Bob Danka and Danielle Downey, who are the leaders, in that we really need to, as an industry, start moving the bees and the genetics towards mite resistance. Those are the types of queens we run. The Saskatraz has turned into a breed. The Saskatraz are not selected for color. It's strictly performance, reoccurring natural selection. So it's years and years of selection for traits, honey production, overwintering ability, mite resistance. The number one thing we need to realize is that the bees have to produce honey. Everything comes after that. A lot of times, when you're selecting for certain traits, you lose other traits. So I think Albert's done a really good job there. Randy's bees are phenomenal also, but he doesn't breed for color either. He breeds for traits. As far as -- I go back to the Saskatraz Again, it's called the new breed, and actually it's just a real, defined selection of traits.

Jamie 07:45
So Ray, gosh, you're doing so many cool things with all of these different queen stocks. I love the statement that you made. We, as an industry, have got to pivot to Varroa destructor in our stocks. You said genetics. I love that. But, gosh, producing queens can't be easy, right? And I'm wondering, what are some of those challenges? So specifically, like weather, how does weather affect your ability to produce queens and the consumer's ability to get queens early in the year?

Guest 08:12
Well, we're fortunate that we have a queen production facility business in Hawaii, so we're able to raise queens there all year round. But that's limited production. You're on an island. You can only run so many bees, produce so many queens. California, number one is weather. Well, actually, number one is the health of the bees. We throw the kitchen sink at our bees from about August till Mother Nature here in California tells us to leave the bees alone. We can't have an off year. We have so many customers that depend on getting their queens on time and just getting them each year. We have to have the strongest bees that we can going into January, and I use January because that's when we start feeding pollen again to bump the bees up. We actually have stronger bees than we need going into the almonds, because we're going to shake them. We start shaking bees for cell builders, stocking the nucs and then packages, and we'll start with cell builders while we're in the almonds. So it's the weather. I watched three different YouTube channels or blogs for weather, and if I look at three and two of them agree on the same thing, I'm watching out at least two weeks ahead. I look at what the extended

forecast might be, just because once you graph it, it's 11 days before you have hatching queens. So there's times of the queen season, where we just can't figure out what's going to happen. We're not sure, so we graft anyway, and if we don't need the cells, we give them away or sell them to somebody else that needs them. So the strength of the bees is number one, and then weather, and then your employees. So that's kind of what the main challenges are for us, as far as getting the queens once we get into April, about the second week of April, it's smooth sailing from there.

Amy 10:08
Ray, there are a couple of things that I've learned working with beekeepers, and that's that one, you all are very, very good at time management and working backwards, and also you're very flexible, because you have to be. So you're able to make decisions very quickly when you're doing that for your operations. I applaud you and the rest of the commercial beekeepers on that.

Guest 10:29
Thank you. It's not easy. The hardest thing is transitioning from pollination to queen production to prepping the bees to go to Montana to supering, and there's been a lot of mistakes made in the last few years. We've had some really, really bad weather and some really good weather. An El Nino is good. A couple years ago, we didn't have a mated queen in California until April 8, which is two weeks behind because it was so cold out here. But going by a calendar with bees is a mistake. It's near impossible. You have to do what the bees will allow you to do, and so you have to think ahead as much as you can, and don't force, based on a calendar, whatever you're doing. You can't blame some of these commercial beekeepers that labor's very expensive or migratory. When these guys come out to almonds, they don't want guys sitting in a hotel for two weeks and not working. It's very expensive, and the profit margins are very tight right now, but it's difficult.

Amy 11:32
Definitely. Something I do want to also ask when we're touching the different facets of beekeeping for you is who is your customer? So when we're discussing the queens that you raise, I know that you produce them for yourself, but are you selling queens to other commercial beekeepers? Do you sell queens to backyard beekeepers? I would love to know who your customers are.

Guest 11:52
Everybody. We sell one queen to 10,000 queens to beekeepers. Quite a while ago, and this is where my wife comes in, there's this perception that commercial beekeepers don't care about the small beekeepers. And that's not true, but there is some truth to it. Also, it just depends on where you're at, and we always felt like, early on, it was mostly just commercial beekeepers. You take the East Coast and package bees, or hobbyist beekeeping is relatively new out west. On the East Coast, we've had beekeepers out there forever. We made a conscious decision that we needed to be able to sell queens to anybody, whether they wanted one, like I said, or 1000. But that takes a lot more people and a lot more organization. There's days where we'll ship three, 400 packages with individual queens, or two or three. That takes a lot of labor. So depends on where you're at and who your customers are, some people will only ship 25 plus, 50 plus, or 100 plus, but they don't have the infrastructure to do what

we're doing, and we've made a decision to do that. We probably ship 40, 50,000 queens a year to Canada. We've got this border, this imaginary line that bees go back and forth, and we should be working with Canada hand in hand like we did years ago.

Jamie 13:19
So, Ray, I listened to you talk about this. It's actually quite amazing. If you ship one to 10,000 queens, the amount of organization that must be necessary to keep up with a customer who only wants one or two queens, versus your ability to bulk ship to a commercial beekeeper 10,000 queens, and then you mentioned packages, which gives us a really nice opportunity to pivot to a discussion of package production, because you don't just produce queens, you also produce packages. And outside the US, we have a lot of listeners from outside the US, package production is not so common. So I'm curious, if you could do me a favor, if you could explain what a package of bees is and then talk a little bit about how you guys produce shake packages, why you produce them, etc. But I think it would be great to start with a definition of a package so our non US beekeepers can keep up with what it is that you do with this part of your business.

Guest 14:13
Okay, so remember, early on I talked about Canada. Now, 40, 50, 60, 70, years ago. It's just a natural progression with the spring time, the bees build up, they get to a point where they're going to swarm. And it just so happens that's the time that Canada, their springs coming on. And here in the US too, if you go back, North Dakota, South Dakota, a lot of the Midwest, those were packaged bees, also, because guys weren't overwintering. A package is two pounds of bees with a new queen that the queen producers raise, or that we raise. And so it could be two pounds, it could be three pounds, it could be four pounds. Back in the day with Canada, it was just two pounds of bees, and they would go install those and make three, 400 pound crops. It's amazing the difference. The days are longer. Fewer bees, but that was a long time ago. Right now, primarily, we don't have any other demand for anything other than a three pound package. After almonds, because we pushed our bees so hard to build up to raise the queen process, those bees are going to swarm. So the next natural thing is to collect those bees and shake them from the hives and create a package. So instead of letting them swarm, we're shaking those bees before they swarm. And we'll usually shake our hives about three times, about every 14 days. We'll shake from the last week of March, this is for packaged bees, till about the middle of May, some years. Depends on the weather 30 years ago, even 20 years ago. We used to do some for commercial beekeepers, but they can pretty much take care of themselves here in the US anymore. As far as making up their dead outs, they'll make up nucs, and that's splitting the hive. I saw a window of opportunity to shake packages for hobbyists, and we built our own trailers. It's just been a learning experience. It's not perfect, but we can pretty much get bees across the United States without losing any bees in the packages.

Amy 16:13
So Ray, I remember, 10 years ago, I received my first package in the mail, and it was through USPS. And I remember sharing with other people who were not beekeepers and didn't really know anything about beekeeping. I told them that I was getting a shipment of bees in the mail, and they were like,

"What the heck? We did not know that that was even a thing." You're talking about shipping packages. Can you maybe tell us a little bit about that process? Have you had great success with shipping packages via USPS? Are there other ways to ship packages, things like that?

Guest 16:47
That's a great question, and it's been a wild ride the last 20 years.

Amy 16:52
For you and the bees.

Guest 16:54
And the bees. Yeah. So as far as shipping really, this year, 2024, was the first year that we really started shipping through the mail again. And it's not UPS, it's USPS Postal Service. They've been doing it a long time, but 20 years ago, maybe 50% of them would arrive alive. And I just decided we're not going to do that. We built these -- first, it was a little cargo trailer behind a pickup, and we would drive all the way to Iowa to Minnesota to Wisconsin. These were brutal trips, and it was 1000 packages at a time, and I had misters in the trailer, fans, all kinds of temperature probes, and it looked like the space shuttle, and it was the roughest ride, toughest time I've ever experienced, because you're freaked out the whole time worrying about the bees. We've evolved to the point now where we use refrigerated trailers, 53 foot reefers, not for the refrigeration, but the make of the trailer, Air Ride, we can haul 2300 packages at a time to Pennsylvania. You can get them. They're very, very healthy. So we've set up distributors. Let's say that we work with queen right colonies in Ohio, David AWS in Michigan, Nature's Nectar in Minnesota, Lee Knight in Utah. Man Lake, obviously, we've been working with Man Lake for a lot of years. So we ship bees all over the United States, and a lot of our packages get reshipped again, maybe even three times. And so at the end of the day, if somebody has a bad experience, it doesn't matter who shipped them. It comes back to all of ours honey bees. So we try to stay in front of everything and control the outcome as much as we can to be successful. And this next year, we're going to be, for sure, we're shipping through USPS in the western states, because that's a two day thing. We're set. We're currently working with different people in on the east coast to also ship through the mail there to make it more convenient for people. We had almost 100% success this year. We did maybe 1000 packages this year through the mail, and it was very successful. And so we're feeling good about that.

Jamie 19:11
You kind of, I think, answered this, but you ship everywhere in the US Continental? Do you ship to, I don't know, Alaska and Hawaii as well?

Guest 19:17
We used to ship to Alaska, but it was very labor intensive because you couldn't have any loose bees, and we just lost track of some of the customers there, because they fluctuated a lot. But yes, we do ship all over the United States. A lot of our packages, and like I said, they'll go to a distributor, and then they'll reship them, and then I think there are people out there that are ordering from us and drop

shipping at the end of the day. What we want to be able to do is make sure that the customer has direct contact with us, because they always end up coming back to us. If there's a problem, it's Olivarez Honey Bees. We've been doing this a long time. As our company still evolves, we just do as much as we can customer service wise. The more direct they're with us, the better the experience is going to be.

Amy 20:07
Absolutely. So I want to steer a little bit away from the shipping of packages. And I wanted to ask you, what are some other challenges that are associated with just, in general, making and selling packages?

Guest 20:20
If you back it out, you got to have a really good staff, office staff, our customer service. And most people know our girls that work in the office, and they've been doing this a long time. They've been with us for 10, 15, 20 years. Communicating, putting as much information as you can out there, so your phones aren't flooded daily with calls. As far as the challenges, it goes back to, I mean, there's been seasons where, and this is why I watch as much of the weather as I can, to anticipate, I try to at least three weeks before we start shipping. There's times where we've had to move the whole season, but we will meet as a group, queen breeders. There's probably 40 or 50 queen producers in Northern California. Almost half the queens produced the United States are produced in Northern California. I wanted to throw that in there real quick. I don't know if people realize that has to do with our climate, but we'll just as a group to help each other out. Say, listen, we're not going to get any queens mated until probably this week. This is going to set this back, and that way people understand better that it's not just you, it's the whole industry in this area is behind. So that's one of the challenges. And then again, working with the weather. I remember one year with my dad, he wasn't able to shake a package. I think this was in '76 or somewhere around there. The first package they shook wasn't until the last week of April, because it rained and was cold the whole month of April. So that's some of the challenges.

Jamie 21:57
So, Ray, I happen to know that you don't just sell queens, and you guys don't just sell packages, but you're diversified another way as well, which gives me a chance to pivot. But I listen you talk about queen production and package production. I'm like, how do you have time to do a third thing? And that third thing is pollination. Somehow you you also manage to use your bees, or at least a percentage of your bees, for pollination purposes. So could you tell me a little bit about your involvement in commercial pollination? What crops do you use your bees to pollinate? How does that affect your season? Things like that.

Guest 22:32
It sounds daunting what we do, and even beekeepers within our industry go, "I don't know how you do what you do." But it kind of comes with the seasons, and then, it's just having the right people in the right places, and try not to get in your own silos. One thing leads to the next thing, and you have to do all these things right, or you can't do any of them. And so pollination is the first thing that we do. It builds the bees up. My dad, when he first started, he wasn't even charging for the almonds back then.

Well, they didn't have the acreage yet, and they didn't realize that they were 90% dependent upon bees for pollination, and that kind of grew. Now, if we don't do pollination, we're not in business. We have to do pollination. We have to make honey. We do the queens and the packages. And we got the business in Hawaii. We're diversified as we can. We go 100% into the almonds for pollination. We don't do any more summer pollination because it's so hard on the bees. It's a guaranteed 30% loss of bees doing the vine seeds in California, the squash, the pumpkins, the carrots, all that. There's so much spraying that goes on. I told you early on that we can't have an off year. And when we finally gave up what we call vine seed pollination, our numbers of losses went down and the health of the bees went up. A lot of guys have to do it because it's part of the revenue to make it to the end of the year. That's where we do the queens and other aspects. But we do a little bit of canola in Nevada, Winnemucca, that's in the summertime. They're very good on the bees. And there's other resources in the area. The bees do real well, but that's it. That's all we do for pollination.

Amy 23:09
Ray, we're talking about pollination right now. And of course, you do honey production, you put together packages. You raise queens after pollination. What do you do with the bees then?

Guest 24:29
The queen production takes a lot of bees for the number of queens that we raise, and that number of packages we shake. We've got to have a typical queen yard. We might have three or 4000 nucs that we're raising queens in. But within a quarter of a mile to a mile, there's 800 to 1000 colonies, drone mothers. So we saturate, we super saturate, our mating areas. So that takes quite a few bees. The almond industry changed beekeeping like nobody's business. We have more bees than our area can support. Too many cows on the same pasture. That's why we go to Montana. I don't even know if I mentioned we went to Montana. We've got two locations in Montana that we take bees to, starting about the middle of May. It used to be that we would take the bees there to recover, put them in the best environment. I mean, it's beautiful out there with no spraying going on, little bit alfalfa for weevils, but it's not while our bees are there. So we take about, up to 12, 13,000 hives of Montana, and run bees out there from May. And we're still there right now. We're just starting to ship bees back, and hopefully we make honey, but the bees build up really nice, and that helps us with getting our bees healthy and into the almonds as good as we can get them, which goes into the queen production, and it's just a cycle. And so we're always trying to keep our bees in the best environment that we can keep them in. In California, after packaged bees, our bees make no revenue. We're just keeping them alive because we need a certain number of bees colonies to stock nucs to produce the queens. So that kind of dictates the number of colonies we run, how many queens we raise, and how many packages we shake. Like in California, we take the bees up into the mountains and get them into the best environment we can there, away from the sprays. Again, Montana is another place that we go to. Other than the canola and the almonds, that's the only pollination we do.

Jamie 26:39
I've been listening to your answer regarding pollination, and you talk about being an almonds, you talk about having done what you call the vine seed crops and getting out of that. So clearly, as a

commercial beekeeper, you've recognized and responded to changes in the pollination industry. Where do you think the pollination industry in general is headed? I know it's hard to project. You've got this crystal ball. You've been doing it a long time. Where do you think all of this is going? Is there going to be a greater need for pollination? Less of a need? You mentioned trying to stay away from pesticides. Where is all of this headed?

Guest 27:15
I don't know, Jamie. So it varies. There are beekeepers that do things that are just mind boggling. I hope you don't mind me mentioning a few names, the Ashurst down in Imperial Valley, 120 degrees, bee shades, pollinating alfalfa, whole different world. I don't even know if I'd keep a bee alive down there myself. There's all that pollination, all the pollination in Florida and and the East Coast, the cranberries, the blueberries, all these things need pollination, but costs have doubled on everything, and our return on our investment hasn't changed. In five years, our costs have gone up about 50%. So beekeeping, I think, right now, is kind of at a hinge point where there's a lot of guys looking to get out of the bees, and we're starting to age out. There was a period there after 2008 when the economy tanked and a lot of people got into beekeeping because a lot of people lost their jobs. They wanted to be self-sufficient, so they bought chickens, planted fruit trees, planted gardens and said, oh, shoot, where's the bees at? They're not pollinating, So they started buying packaged bees. COVID hit a lot of distractions in the world right now, and bees are kind of, as far as I'm concerned, they're on the back burner right now. Pollination, you've got about 900 commercial beekeepers, and that number can fluctuate, pollinating $33 billion worth of food, and 900 people. And about three people in that company really understand what's going on. Bees are the most underrated, overlooked commodity or industry in the world. I think I'm optimistic about it, because most beekeepers, you do it because you love it. It drives you. It's an adrenaline rush taking care of something and watching it thrive season to season. There's never a dull moment. But the mites, I remember, God, Eric Musson came to every one of our bee breeders meetings, and when we first got the Varroa mite, he says, "Okay, I want everybody to sit here and look at who you're sitting next to." I think I was 18 or 19, something like that. And he says, 30 years from now, I want you to all sit in the same place. I want to ask you, what's the number one problem we have, and that will be the Varroa mite. Still, you're not going to defeat this thing. 30 years later, we're sitting there, and everybody's laughing, everybody's gray, some people are missing. And he says, okay, group, what's the number one problem? And everybody just started laughing. It's Varroa mite. We've got some definite challenges in our industry, and I'm sorry I went off on that tangent, but it does correlate to pollination, and there are beekeepers out there that will grind it out, build their bees up again and pollinate, but we're getting to a point where we're not going to be able to just bounce back. We're already there. We're not able to bounce back because we're not getting enough return on our investment right now.

Amy 30:19
I love hearing your story, Ray, and I like just hearing your experiences, and your perspective on everything. I agree with a lot of what you said, and I'm sure many of the commercial beekeepers listening to this would also agree with you. So we really appreciate you sharing that with us also.

Guest 30:35
At the same time, there's a lot of opportunity, but you have to be involved. Things like this, the podcast, Jerry Hayes probably gave the most important speech, I think, a keynote address at the American Honey Producers Association last year. I don't know if it went in one ear or out the next, but what it was about was just who knows what we do as an industry? Not only commercial, but hobbyist. There's probably over 300,000 hobbyists in the US. It might be more. It peaked at one time. I think it's gone down a little bit. But again, the disposable income isn't there as much, and it's very difficult. You got commercial beekeepers losing 30, 40, 50% of their bees, and a hobbyist gets two packages and they lose one, that's 50% and they're real distraught. And actually it's pretty good. It takes a while to learn, and that's the thing. What hobbyists need to know is that the learning curve is very steep. What you'll learn depends on you. Then just keep working on that. I mean, there's a lot of advice out there, lot of people leading people, you can get from everybody, and then understand what works best in your area, and then keep working on that, and you could be successful. There are plenty of people out there doing very well with bees. It's 365 days of the year.

Amy 31:54
Definitely. Well, that takes me to the last question that I have for you in this interview, and that is, just given everything that you do, can you give us just a broad 30,000 foot view of your standard beekeeping year, month by month? So what are you doing every single month with those bees?

Guest 32:13
Let's start January 1. We hope we get everybody back from vacation by the first week of January, and we start feeding. We start going through all of our hives. Now, this is in California, so there's years in January where we're 70 degrees, kind of depends on what the weather's doing, but that's when we start kicking off. We start feeding pollen, building the bees up for the almonds and the queens and the packages and the rest of the year. So we'll do that. Even while the bees are in the almonds, we'll feed pollen. We're queen checking. We're equalizing hives. It's very important to equalize, take a little bit from the best and give them to the weaker ones, and build them up somewhere around, oh gosh, the end of February, we're working on the breeder queens and getting them prepped and bringing them up to strength. And we start doing some mock grafting to see how the queens are laying and actually exercising them a little bit. Then we start shaking for cell builders. And once we start grafting for queen cells, we have to start shaking bees, and we'll make up somewhere anywhere between 3500 and 4000 nucs a day, and we'll put out about 60,000 mating nucs. We use the styrofoam mating nuc. And so that takes about 25,000 pounds of bees. That's why we have to have the best bees that we can get, and we don't always. There's years that we struggle like everybody does, but we end up finding a way to make it all work. January through the end of February, 1 week of March, we're in the almonds. Start the queens, and then we start moving the bees into the regular bee yards. Actually, I forgot we do cherry pollination down around Sacramento. Have a really good friend down there, and we started pollinating with a few bees in the cherries. I forgot about that. We're also moving bees into the cherries at that time, after almonds. We start shaking packages, sometimes as early as the 25th, 26th of March, depending on the year and the strength of the bees, and we'll shake packages all the way till the middle of May, on big levels. We shake about 30,000 packages a year, and we have other beekeepers help

us. We could do it all, but we like to work with with other beekeepers and include them in that so that if we have a bad year, we can predictably get the -- it's the bulk bees that you need. We raise all the queens. Some years it's a challenge. If the weather's not cooperating, you only get three or four hours a day. It helps to have two of a couple other beekeepers helping you get the bees. About the time we're finishing up with the packages, which is about the middle of May, we're also prepping the bees to go to Montana, and that takes us about three to four weeks to get all the bees out to Montana. So then, we have a crew out there that's taking care of the bees, and we try to do all the work at home, queen checking, making sure they got good weight. We used to send everything to Montana, no matter how strong it was, so it could heal the cost of freight and just the cost of labor and everything else. Now, we don't send anything unless we know it can make honey. Freight's gone from $1.80 a mile to $7 a mile. Two years ago, we paid as high as $7 a mile. It's the same thing coming into the almonds. You don't send a dead hive to the almonds. That's a waste of money right now. We are prepping the bees in Montana. They've been coming home a little bit at a time, but we'll start making a big push, and we'll have all the bees home probably by the middle of October. We are, for the first time, putting about 4000 colonies in winter sheds in Idaho this year. I've never had the confidence to prep the bees properly to put them into the winter sheds away from home. This year, we are. We have three kids that have come into the business, and it's taken about five or six years for everything to kick in with them. It's really helped as far as organization within our company and accountability. We've done a really good job in Montana this year prepping the bees. We've decided to put some in the shed. This year, the rest of the bees come home soon. As they get home here, in the next three weeks, we'll go through and probably put two rounds of pollen feed into them, and we might even feed going into November. Just depends on what the weather's like this year. That's what our season looks like. Then we start over again.

Jamie 36:53
That's exhausting, Ray. I don't know how you do all that. That's incredible.

Guest 36:59
It is. It's all about the people that you work with, right? And working with other beekeepers too, this industry, we're migratory, we're nomadic, right? For the most part, territorial. And we've always worked with people, other beekeepers, and it's so much easier and so much more interesting than being adversaries. Jamie, you know what I'm talking about, about territory.

Jamie 37:29
Absolutely.

Guest 37:30
Oh my gosh. Location, location, location. And a lot of the beekeeping etiquette is gone. I blame that on the almond industry. I love them and I hate them.

Jamie 37:40
Well, Ray, gosh, you've really given our listeners quite a diverse glimpse into queen production, package production, pollination. You even mentioned you guys do honey production. You've clearly

demonstrated the importance of diversification in your business. I think a lot of our listeners are just going to be listening in awe the type of work that's necessary to be a commercial beekeepers. So I just want to say thank you so much for joining us on this podcast. I think it was a great podcast. I think our listeners are going to benefit and appreciate you coming on and talk a little bit about what it means to be a commercial beekeeper.

Guest 38:17
Well, thank you. I picked up as much as I can from your podcast. I've listened to you speak. I watch Ian Steppler, Bob Binnie, there's a lot of good information out there, and you could take bits and pieces and apply it to your beekeeping no matter where you're at.

Jamie 38:33
Ray, we all learn from each other, and I'm grateful that you've been teaching us and our listeners this past little bit on the podcast. So thanks again, Ray.

Guest 38:41
Thank you.

Amy 38:50
Jamie, I was really excited to have Ray on today because I feel like our listeners really like to hear it from the beekeepers themselves. And I feel like Ray has just had a very successful career. He knows so much about the industry. His business and operation does so much, and even off air, he was telling us that they have a restaurant, which I thought was really cool, and he didn't mention that during the podcast. So what were your thoughts on the interview?

Jamie 39:15
Every time I hear commercial beekeepers, especially successful commercial beekeepers, speak, a lot of things come to mind. Ray, first of all, diversifies. He has basically businesses within a business, right? Queen, production, package production, pollination. We didn't interview him about honey production, but he also mentioned producing honey. And then, of course, on the side, there's all of these other interests, and you mentioned the restaurant. So diversification. The second thing that comes to mind is, gosh, hard work. Commercial beekeepers work really hard, providing a service, in our case, to the country, but certainly commercial beekeepers around the world. I, myself, personally, have only ever been a hobby beekeeper. Of course, in my work setting we run a few hundred colonies for research purposes, etc, but me, as a hobbyist beekeeper, just we don't appreciate what commercial beekeepers go through and have to do, first of all, to put food on their own table, but also put food on our table. So all of those things were going through my mind as I listened to him talk about his successful business, but one that takes a lot of work to make successful.

Amy 40:21
Yeah. Something that we had discussed during the interview, and this is something that I think I forget about sometimes too. I come to my office. Obviously, things are very seasonal for us. We do get

impacted by the weather, but they are completely reliant on the weather and what's going on. You have to make decisions based on that. You have to make decisions based on your bees. Your bees kind of tell you whether they're bringing stuff in or not. Having to make those decisions and figure out to either move quickly, because the weather is constantly changing. I mean, year by year, it's just changes, and you have to be ready for it and you don't want to miss certain flows. So I thought that that was something that was also really interesting.

Jamie 41:00
Yeah, beekeepers, in many ways, are farmers, and farmers are essentially at the mercy of the weather. You can plant the right crop, water it, irrigate it, but if you don't get the sunshine, you struggle. You know, diseases and pests. Well, honey bees, beekeeping, it's the same thing. I was thinking about his queen production discussion with the link to the weather, and how he was saying a cold winter can set him back two weeks. Well, it might be a cold winter for him, but his clients who ordered a thousand queens last year to be delivered these two weeks, now, we're scaling their business to be ready to receive those 1000 queens these two weeks that Ray can't produce because the weather's not cooperating right now. And I just think about how queen production, packaged production, in his case, pollination, all of this is at the mercy of the weather. We all know weather changes. That's one of the things that happens. But when you hear big, scary words like climate change and what impact might it have on diseases and pests and spread of problems for honey bees, you think about the thing that they pollinate and from which they collect nectar. So it really is amazing what commercial beekeepers have to think about, how they have to plan, etc, to be successful at what they do.

Amy 42:11
Absolutely.

Stump The Chump 42:19
It's everybody's favorite game show, Stump the Chump.

Amy 42:27
Welcome back to the question and answer segment. This is round two of the Q&A's from our Bee College questions. And so we'll just start from here. Jamie, the first question that we have is, why would you not just hang a swarm trap up in case your hive takes off? Maybe the question is, really, is this something that beekeepers should just do proactively to try to catch swarms in case your hives leave?

Jamie 42:53
So I love it. Why not hang a swarm trap in case your hive takes off? Why not?

Amy 42:57
Yeah, why not?

Jamie 42:59
Exactly.

Amy 43:00
I don't know. Do it

Jamie 43:02
Exactly. So I love the question for that reason. Okay, so a couple things here. Oh gosh, there's a lot of things. I can over answer questions sometimes. So I'll be real careful. Ultimately, if you are wanting to produce honey, you're wanting to control swarming. So I would argue that your first step in this whole question is you should be doing things to control swarming. That's my opinion. But I think it's a strongly supported opinion. So that said, I mean, a colony is going to swarm at some point, even if you're doing the best things that you can do. So for example, if you have 10 colonies, you're doing perfect control measures, swarm control measures on them, you're going to get a colony or two that still beats the odds and will try to swarm despite everything that you're doing to stop it. So with that in mind, if you are managing colonies, even optimally managing colonies for swarm control purposes, occasionally, one's going to leave under the radar. So why not have a bait hive sitting out in the environment, in your apiary, 100 yards away, something like that, to provide an option for that swarm to go into? I will just say, you can't expect to capture every swarm, even if you have bait hives up. Your colony that swarms, that swarm is looking for the most optimum available nest site that may be your bait hive. It may not be. So there are some bait hive best practices, as it were, that would really help out, kind of increase the chances of you getting a swarm to go into it. For example, I wouldn't necessarily hang it at the edge of my apiary. Swarms want to get away, so you might put bait hives optimally, 100 yards up to a quarter of a mile from your apiary. Kind of a circle around. I know a lot of people may not have that volume of land. So you may be asking your neighbors, your neighbor's neighbor, can I put up a swarm trap, depending on how much land you have, hanging the swarm trap 15 feet, so five-ish meters or more in the air, having that cavity at least 40 liters in volume, having at least one pulled comb, and I'm gonna tell you why I'm saying all this, having at least one pulled comb in that hive, pointing the nest entrance south. If you're in the northern hemisphere, having that nest entrance towards the bottom of the hive, and having that nest entrance be smaller in area than about two to three square inches. All of those things make that bait hive, that swarm trap more desirable to swarms. So why did I say all of those things? Well, Dr. Tom Seeley, from Cornell University, he's retired now, has done a lot of work on what swarms prefer, and they like all those things that I just said, cavities that are about 40 liters in volume, cavities that are about 15 feet off of the ground or more, cavities whose entrances are at the bottom of the hive, about three square inches or smaller and pointing south. They prefer to go into nest that already have comb from a colony that previously occupied that cavity. So putting all of those conditions into your swarm traps will increase the chances that swarms issuing from your apiary will end up in those swarm traps. So if you've got no other options, you can certainly hang them up in your apiary. But if you've got more options, moving them out 100 yards, 100 meters or so, a more away can really help out. You don't have to go over about a quarter of a mile, but certainly kind of that radius around your apiary provides that brand new swarm the optimum conditions that it's seeking to find that new nest.

Amy 46:36
But just because you have a swarm trap out doesn't mean you're going to be catching every swarm.

Jamie 46:40
100%. Exactly. That's exactly, right. So, in fact, you cannot expect it after every swarm. You will still lose swarms.

Amy 46:48
I mean, we've got swarm traps here at the lab, and I'm sure there are birds that I've made homes in there, as well.

Jamie 46:55
None of them have been occupied, that's for sure. But we also don't follow any of the advice I said. They're six feet off the ground. They're big entrances. They're pointing in the wrong direction. They don't have old comb in them, things like that.

Amy 47:06
So they're more just for show.

Jamie 47:08
Yeah, yeah. We'll leave it with that.

Amy 47:11
Definitely. Okay. So for the second question that we have today, which bees, Italian, Russian mixes, Caucasian bees, which bees are best suited to Florida?

Jamie 47:22
Well, Amy, this is a little difficult question because number one, I want to make sure and answer it in a way that's relevant to all of our listeners outside of Florida. The majority of our listeners are from outside of Florida. But number two, the only way really to answer that question is to do a research project in all the areas that exist in Florida. So for those of you listening to me answer this question from around the world, I'm going to use Florida as a microcosm of what's happening in your location. So Florida is a long, skinny state. It's got a Panhandle part that goes kind of east to west, and it's got a peninsular part that goes north to south. And there are many different habitat types, climates from North Florida all the way down to South Florida. You go from temperate climates in the panhandle all the way down to tropical and subtropical climates in the Keys in the southern Florida. So it's really impossible to say, which bee stock works best, quote, in Florida, because that would, no doubt, be very region specific, because, for example, I'm making a statement, just as an example. I'm not saying this is or isn't true. But Russian bees may be better suited for maybe more temperate climates, whereas something else, maybe Italian bees would be better for warmer climates. It's just, it's those kinds of things. And so really the only way to answer the question, like here in Florida, is to do that experiment in the panhandle, then to do that experiment in North Florida, then to do that experiment in Central Florida, then to do that experiment in South Florida, then to do that experiment in the Keys, so that we can say, hey, in these different regions of Florida, here are the bees that perform best. We happen to

be setting up a study where we're going to look at these stocks, but we're looking at them from the perspective of Varroa. Which of these stocks control Varroa best through the various seasons in Florida? So we're going to try to answer it from a Varroa perspective. But it's really difficult to just say straight up, this is the best bee for use in Florida. So let's grow that. What's the best bee for the use in the US? Well, that depends on where you are and what your goals are. What's the best bee for use in Germany? Well, that depends on where you are, what your goals are. And so it's there's no easy answer to that question. So really, the best way to answer that question is, as a beekeeper, if you know a third of your colonies get stock A, a third of your colonies get stock B, a third of your colonies get stock C, manage them all the same for a few years and see which one performs best for you. We can answer it from a Varroa perspective, which we're going to try to do here in Florida. But in reality, these kind of questions are best answered with your own bees in your own location.

Amy 50:05
Definitely. There are so many, I mean, there's so many beekeepers associations out there, and just general beekeepers around that have probably played a little bit and dabbled a little with different types of bees. So they may be a good option to go and ask as well.

Jamie 50:21
Absolutely.

Amy 50:22
All right, so for the third question that we have, I assume that this question is talking about Varroa, how to develop better mite search, so mite monitoring techniques, and I guess maybe the broader question is just, is what we're doing the best thing out there? We have mite monitoring techniques with alcohol, with sugar, with Dawn soap, dish soap. What are your thoughts on this?

Jamie 50:45
Yeah, so this is a good question. And so basically, the way that we survey for mites right now falls into one of three categories, visually, washes or fall. So visually, do you see mites on adult bees. If you remove brood from brood cells, do you see mites on brood? That's all visual. I know that this is the least reliable of the three ways to screen for mites. They will tell you if you've got mites or not, but it's not really a trustworthy way of knowing do you have actionable mite levels in your colonies. In other words, do you have mite levels that you need to do something about? So while you can see them visually, it's not such a great way to determine whether you need to do something about them. So the next is mite fall. And just like what I said, fall, it's relying on mites to fall. This is usually a sampling method that takes place at the bottom of a hive, where you slide in some sort of sticky surface mites fall off the bees. Whether there's a treatment in the hive that causes that to happen, or the bees groom themselves, or it's just natural, might fall throughout the day. You count the mites on this sticky surface on the bottom of the hive, and you use that to guesstimate the mite populations in the hive, and then you've got all the washes. Wash with soap, wash with ethanol, wash with water, wash with powdered sugar. I mean, the powdered sugar is really a type of wash. The washes tend to be the ones that are most practiced by beekeepers, because they're kind of the easiest to do, and they generate for you an

actionable mite number, because the washes result in a mites per 100 bees count, because you can know the bees in the jar. You can know the mites coming out of the wash. So you divide the mites by the bees. If you get 100 mites and 300 bees, and you have one mite for every three bees, kind of thing. So you're able to generate a mite to bee ratio. And we know an infestation rate of three mites per 100 bees is what triggers treatments in hive. That's the economic threshold. So those are all tedious, arduous ways of trying to figure out mite populations in a nest. But right now, the wash methods are all the better ways to do it. So I'm assuming this questioner saying is there research on better search techniques? And I would say yes, there are people, for example, who are trying to correlate sounds that colonies make with mite populations. Maybe people can look at odors correlate with mite population. Of course, we have this explosion of artificial intelligence use around the world. So there are folks working on artificial intelligence systems where there's video visualization of bees coming down the nest, pictures taking of frames with this AI, then trying to find the mites on bees. And the more that it does it, and the more pictures or videos that's used to train these AI systems, the better we will be at counting mites. So yes, there is research on better mite population estimation techniques. But, I mean, right now, washes provide probably the most actionable numbers, but with this explosion of AI, really expect AI to win the day in a matter of a few years.

Amy 53:59
Yeah, definitely I didn't, actually, wasn't expecting you to say AI, but as soon as you said it, it makes sense. So it'll be interesting to see what happens in the future with AI and different technologies. All right, if you have other questions, listeners, please feel free to send us an email or message us on one of our social media pages. We're on Facebook, Twitter, or, I guess, X, and Instagram. Thanks for listening to today's episode. This episode was edited and produced by our podcast coordinator Mitra Hamzavi. Thanks, Mitra.

Jamie 54:38
Visit the UF/IFAS Honey Bee Research and Extension Laboratory's website, UFhoneybee.com, for additional information and resources for today's episode. Email any questions that you want answered on air to honeybee@ifas.ufl.edu. You can also submit questions to us on X, Instagram, or Facebook @UFhoneybeelab. Don't forget to follow us while you're visiting our social media sites. Thank you for listening to Two Bees in a Podcast.