Episode 104_mixdown PROOFED

Thu, Aug 25, 2022 10:06AM • 35:07

SUMMARY KEYWORDS

colonies, bees, hive, june, beekeepers, bee, varroa, queen, pollen, swarms, honey, populations, strong, water, pollen patties, question, honey bee, amy, splitting, jamie

SPEAKERS

Amy, Stump The Chump, Serra Sowers, Jamie

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.

Amy 00:52
So we are now in June, and Jaime, it's getting very, very, very hot outside. And it's probably really hot for everyone else, but especially here in Florida.

Jamie 01:02
It's a tough time of year in Florida. If you like heat, this is the place for you. But if you don't, it's a tough place. And we couple that with humidity, at least in Florida.

Amy 01:10
I know.

Jamie 01:11
I know people are listening from all over the place. June starts a really rainy time of year for us, here, at least in North Central Florida, where we're broadcasting from and it's hot and humid. That's what's happening.

Amy 01:20
Yeah. All right. So we're going into June, what do we need to start considering in our apiary?

Jamie 01:27
Yeah, so June kind of transitions us into the summer months when management is important. But there are fewer things on which you have to focus. So usually coming out of April and May, those are your peak honey flow seasons, that's when all the nectar is available, and that's when bees are converting that nectar to honey. And so when the first of June rolls around, most beekeepers in temperate climates use June as the honey harvest and extraction and processing month. So really, that's what's happening right now, your main flow is over, and you've got colonies that are as strong as they are going to be all year. And if you've done a good job, you've got copious amounts of honey, and that honey has to come off of those colonies and has to go through the processing part of it all. So the first thing I'll say in June is you've got to harvest and process your honey.

Amy 02:20
Right. So do we leave some honey behind as we're harvesting? Or do we just try to harvest it all?

Jamie 02:25
Wow, that's a good thought-provoking question. So there's really, Amy, two schools of thought on this. So I can really chase a rabbit with this. Let me just start this way. My personal typical hive configuration is a deep box where the queen is allowed to lay eggs, and then an excluder, and then a medium super that I leave on the hive year round. And that medium super is full of honey that they use throughout the year to provide the honey resources that they need. Okay, so when I manage my colonies, I'm supering on top of that, what I call food super, and when I harvest honey, I take off all the supers that are not that one super. So I leave a medium super of honey on colonies throughout the year, and if that medium super is ever half full, or a quarter full, for example, I'll feed it. So I personally leave a super of honey on for the bees to have that energy source all year. Now, a lot of folks do the simple math and say, "Hey, honey is way more valuable than sugar or corn syrup." So they might harvest all the available honey supers, in which case the bees are now left with none. And they will feed back sugar water or corn syrup so that bees can then fill something the equivalent of about a medium super's worth with sugar syrup or corn syrup. And I know that there are a lot of purists out there listening to me and saying, "We've got to leave pure honey on the bees, etc." But I will emphasize the bees really use honey, principally, for their energy source. And so from the bees' perspective, they can get that energy from sugar syrup or from corn syrup, or from honey. So a lot of beekeepers take the approach, "I'm going to extract everything and then I'm going to feed back to them in June sugar water, corn syrup, or whatever is cheapest at the time, in order to make sure that they have enough throughout the year." So you asked me a really simple question, but it's kind of a convoluted answer. So really, number one, it matters what configuration you use. In my case, I always have a medium super on a deep brood box. That's my standard hive configuration. But some folks may use single deeps as their main configuration or double deeps as their main configuration. So they want to extract all the medium supers. So I will say really whatever angle you take, it doesn't matter so much from the bees' perspective. I will tell you, my mentor told me, and I learned to do the single deep and the medium from him, he said, "Jamie, I don't care how beautiful the honey looks in that food super. I never take it from the bees." And so I've always kind of adopted that policy as well. That first medium super, it's just theirs. They're going to put nectar in it first when the main honey flow starts, and I'm just simply not going to touch it. It's just what they get to keep.

Amy 05:19
Right. So let's talk a little bit about pests and diseases. I know that last month, it was kind of a, we're about to kind of get into nectar flow, and so hopefully, you have your pests and diseases under control, right? And so let's move into that and what we need to consider going into June. So let's start with let's start with Varroa. How about that one?

Jamie 05:40
Yeah, of course. That's the big deal in the bee world. So April and May are usually fantastic months for bees. Copious amounts of pollen, copious amounts of nectar, bee colonies are growing, they're aging, just life is good for a honey bee colony. They're as strong as they're going to be all year, at the end of May at the beginning of June. And because of these copious amounts of resources, because of this copious amount of resources, bees are strong, and they've outpaced many of their diseases and pests. So usually, coming out of May going into June, they're not only as strong as they're going to be, but they're also usually as healthy as they're going to be. Nothing fixes a problem in a bee colony quite like incoming pollen and nectar. So it's like bees can overcome almost anything if the resources are available in the environment to do it. So, why, then, are we going to talk about Varroa? We're going to talk about Varroa because I need all of you out there to visualize this with me. So from February to the end of May, colony populations are growing steadily. And Varroa populations coming out of winter are very low and they lag behind the bee population. So bee populations are growing and growing and growing. And Varroa populations in February and March slowly start to grow and then gain a little bit of steam in April and May but not enough steam to catch up with that of the bees. So usually in June, for much of the temperate world, when the bee population crests and starts slowly to come down in June, the Varroa population will continue to go up. And what you'll see is sometime in June or July, you can get this inflection point where the bee population's just naturally coming down, the Varroa population's naturally going up, and so you reach a critical Varroa per bee ratio that starts causing problems for bees. So let's go all the way back now to the first of June and say, why does June matter? Well, June matters because your bees are as strong as they're going to be all year. But they're slowly going to decrease in population as they get closer to fall and winter months. And this is the time of year that Varroa Control Strategy matters: June, July, August. Because a lot of folks will take the approach, "My bees are strong, life is good. I don't have to do anything at all." When in reality, in June, you really need to begin looking at what your Varroa populations are and be prepared to treat and address those Varroa populations should they reach critical thresholds. And maybe you don't see it at the beginning of June. Maybe it pops up at the end of June, or the first of July or mid-July. But you really need to be sampling through June, July, and August to make sure that you're on top of those Varroa populations. So, Amy, what I would tell you is that they're probably not a problem in June. But you need to prepare starting in June because you want to make sure and carry very strong colonies in the fall. And so it starts the moment you take those supers off those hives.

Amy 09:05
Speaking of strong colonies, some of the recommendations that we've had for small hive beetle, which is the next thing that I wanted to talk to you about, was just keeping your colonies strong and they can

take care of small hive beetle. So do we start seeing small hive beetle during this time of year? Does that population start increasing? What does that look like? And what are your recommendations?

Jamie 09:25
Yeah, so Amy, another good series of questions. We know we have listeners from all around the world. If you're listening to this podcast right now, thank you so much for trusting us as a source of knowledge for beekeeping. But the reason I'm saying this is probably a lot of you listening to me don't have small hives beetles in your colonies.

Amy 09:42
They are so lucky.

Jamie 09:43
Exactly. You are among the fortunate ones, I will say. But for those of you who do have small hive beetles in your area or even in your colonies, June, kind of like Varroa, June is the time of year that beetle populations start to go up. Colonies will overwinter with a few adult beetles, they'll be present in January, February, March, and April, but they really start to grow in April, May, June, and especially July, August, and September. So going back to before it's a problem, like June, you can start doing things like noticing and seeing if beetle populations are growing. Do you need to do something to control them? Maybe putting in some traps, ensuring your colonies have good queens who are laying lots of eggs, that colonies are very strong, and they have ample resources. All of these things go a long way into helping colonies keep the beetle populations at bay at the beginning of June when those populations tend to get very noticeable to the beekeeper.

Amy 10:49
All right, so what else do we need to consider going into June? I just keep thinking about the heat and the humidity.

Jamie 10:56
As I say, well, you started this segment talking about how hot it is getting. And I'm going to just follow up on that theme. Now, I recognize all of our listeners live in very different places. But where you and I live here in Florida, it's hot. It's hot in June, it's hot in July, it's hot in August, it's very common for us to be in the 90s or even over 100 in June, July, and August. I'm just trying to do the quick math, that's somewhere between 35 and 42 or so degrees Celsius, for those of you who work on that scale.

Amy 11:27
It's hot.

Jamie 11:27
Yeah, it's just hot. That's the take-home message. It's hot. Now, I want you to think about it from a bee's perspective. Their colonies are strong, and you just removed the honey supers, you're extracting them. So not only were they already strong when they had the supers on the hives, but you've made them stronger per unit area when you've condensed the same amount of bees down into a much smaller

area. So the colonies are strong, they're in a restricted space, and they're hot. So as a result, it is always important that honey bee colonies, especially through the summer months, have adequate access to good clean water and I say good clean water because bees will collect water from anywhere that has water. They'll go to swimming pools, bird baths, water troughs for cattle, for horses, what have you. I know that if your bees are located close to agriculture, maybe there are farmers who are actively irrigating their fields, bees will go to the irrigation pipes when they're not on and collect water. So they need a good source of clean water. Not all water is clean, right? We live in Florida where mosquitoes are a big problem as an example. And so there might be mosquito treatments applied to water, or maybe bees or getting water from agricultural fields that have pesticide runoff. So bees need a good source of clean water this time of year because they need it to thermoregulate. They'll bring this water back to the hive, they'll sprinkle droplets around the nest, they'll fan their wings at the nest entrance which circulates air through the nest, and this fanning of their wings this movement of air evaporates the water and through evapotranspiration, you get a cooling effect in the hive. So bees need clean water in June. If you don't give it to them, they are going to find it in the worst possible space or place that they can get it. For example, if you live in suburbia, your bees are inevitably going to fly over your birdbath to go to your neighbor's swimming pool. If you live in an agricultural area, they might go to someone's irrigation pond or just something that you don't want them visiting. So you've got to keep in mind they need water this time of year, because it's getting hot, and they need it for thermal regulation purposes.

Amy 13:52
Right. And this is when we get the calls, right, Jamie? This is how we get the calls from the neighbors trying to figure out what to do with these bees. So Jamie, one of the calls that we get are from neighbors sometimes but also from beekeepers themselves because they see this really weird behavior of all these bees hanging out at the entrance or just on the face of the brood chamber. And so what is going on here and how do we minimize this? Or what's happening?

Jamie 14:11
Absolutely, absolutely. Oh my goodness, Amy, I tell you every June, July and August I get emails, and sometimes phone calls from folks who are looking at their hives, they see these huge clusters of bees on the entrance, and they're freaking out. "My bees are swarming. They're dying, they're leaving the box, they're absconding! What's going on?" Well, what's going on, usually, at least, is the phenomenon beekeepers call bee bearding or beards. Essentially, the bees are hot and they're strong, colonies are strong, they go out, the forager bees are out foraging all day, they come back to the hive, you've condensed that colony by taking off the honey supers that you're now processing somewhere else. So you've got a lot of bees and a small space, and it's hot. And what you tend to see in summer months, June, July, and August, maybe even into September, is a lot of these bees will hang out outside of the hive, especially in summer evenings and at nighttime. What they tend to do is they tend to cluster on the face of the hive, but even more so hanging from the entrance of the hive to where it looks like the hive has a beard. It's just this beard of bees. And this is a very natural phenomenon, it is just simply bees vacating the nest, probably in an effort to keep the brood cool. If all those bees went into the hive, you can run the risk of the colony overheating. And so it's just natural, it's nothing to worry about. It just tells you that, "Hey, it's hot. We're a strong hive." And every time I see it, I just assume things are

absolutely okay and that the colony is functioning the way that it should function. So nothing to worry about, something to marvel at and appreciate. But again, nothing to panic over if you happen to see it.

Amy 16:09
And that usually happens quite a bit in the evenings too, right? I mean, that's just when the bees are coming back after foraging-

Jamie 16:15
Exactly.

Amy 16:16
-and so people will see that.

Jamie 16:17
Exactly.

Amy 16:19
So you were, you mentioned this earlier, but our bees are strong. And a couple of months ago, we were talking about swarming and preventing swarming. We were talking about splitting colonies. Do you recommend going through and splitting colonies? I mean, is this a good time of year to do that? And if you're splitting, do people buy bees in the summer? I don't know.

Jamie 16:39
Well, it is a weird time of year for folks to think about buying bees. And it's just because it's hot and you've missed the main nectar flow, right? A lot of people want to acquire bees before the main nectar flow, usually February, March, maybe April because they can take advantage of the coming nectar and pollen flow to grow those new colonies that they've purchased. So all of that's important. All of that's good. That's when the nuc industry and the package industry and the queen industry have a lot of their business, colonies are booming, they're strong, they're splitting colonies, all of that stuff. But you've got this other problem, right? You come out of the main nectar flow, May is over, and again, I've said multiple times, kind of throughout this segment, bee colonies are as strong as they're going to be all year right now. Now, a lot of folks living in temperate climates and maybe even subtropical or tropical climates, they've hit their main nectar flow. And maybe there's no other nectar flow the rest of the year that significant. And what do I mean by significant I mean, it's one that the bees are actually going to store a super or two or more of honey to the point where it's harvestable. So a lot of folks maybe can take their bees into a summer nectar flow or into early fall nectar flow and produce marketable honey. But a lot of folks, maybe even most beekeepers can't, so when May is over, it's just over. And so in June, you've got colonies as strong as they can be, and you're not necessarily having to prep for another coming honey flow, so what do you do? Well, what I've done often in June is I've just taken advantage of the health and wealth of the bee colonies. And that's a time of year that I'd make splits to recover losses, or maybe make splits to increase the number of colonies I have. Amy, when I first got to Florida, I had a set number of colonies, and I didn't want more. And so when June would roll around, I

would always shake queenless packages from my hives and simply donate those queenless packages here to the UF Bee Lab just so we can strengthen some of our experimental colonies.

Amy 18:34
Yeah.

Jamie 18:35
So the point that I'm making is in June, you've got lots of bees, and if you don't have a nectar flow coming up in July or August, then you've got really nothing to do with them. So you might consider making splits or making packages and increasing your own number or using this as an opportunity to sell some colonies, make some splits and sell those colonies so that you're not having all these bees just kind of sitting around with nothing to do. It's a great time of year to split.

Amy 18:58
Yeah, absolutely. Okay, so there we have it. We are going into June. Look at harvesting your honey, see if you have enough to harvest, make sure that your mites are under control. Make sure that your colonies are strong and they're taking care of those small hive beetles. Give them a water source, a clean water source right Jamie? That's what you said. And don't be afraid of bee bearding. If you're not sure, you're always welcome to send us a photo and we can let you know whether or not they are bearding.

Jamie 19:30
They could be mustaching, and we can help you decide...

Amy 19:34
Oh my gosh.

Jamie 19:34
I'm just kidding. It's important to distinguish between the two. Bearding's ok, but mustaching.

Amy 19:39
Absolutely.

Jamie 19:40
That's not a thing by the way. I didn't just make up.

Stump The Chump 19:43
Bee mustaching?

Jamie 19:44
Yeah, I don't know, we'll see.

Amy 19:46

We can turn it, it it's now a thing, Jamie. You've just made it a thing.

Jamie 19:49
All of you listening to our podcast, I want you to go over and take a picture of your favorite colony's bee beard, load it on your social media account and tag us, and so we'll see all these bee beards or mustaches that are out there.

Amy 20:04
You got tripped up on what you were trying to create.

Jamie 20:07
Do what you want to do. Bee beard or bee mustache, we are starting a movement now.

Amy 20:11
Oh my goodness, all right, well, split your colonies if you need to. If you have any other questions, especially here in Florida, we have our Florida Beekeeping Management Calendar, be sure to check that out. And we'll have it in our additional notes and resources on our website as well.

Stump The Chump 20:33
It's everybody's favorite game show, Stump the Chump.

Amy 20:46
So we are at that question and answer time. And Jamie, the first question that we have this person is from Ontario, Canada, and they're getting ready for winter. Well, they're getting ready for fall and winter. It's really funny because it's like, we're recording this right now, and it's so hot outside that I can't even think about fall and winter. It's crazy.

Jamie 21:06
Well, the whole time I'm thinking that they're in Canada, Ontario, so, like, aren't they always getting ready for winter up there?

Amy 21:14
That's true.

Jamie 21:14
Is it ever like spring or summer up there? I don't know, I'm just being facetious.

Amy 21:18
I've never visited. I need to go some time. But this person is a new beekeeper, and they're asking about getting ready for fall and winter, basically asking about pollen patties. And so should this person be looking at adding pollen patties? Is it harmful to add pollen patties? Or is it really just the bees will reject it or just not use it if they don't want to? So really the question is, should beekeepers be using pollen patties, I guess, in general, and then going into the winter, does it help at all?

Jamie 21:49
Well, these are some tough questions. And let me just start by saying it all depends. And what do I mean by that? So I've only ever been a hobbyist beekeeper. What I tell folks is I'm a hobbyist beekeeper at home and I'm a sideline beekeeper at work. And then I work with commercial beekeepers part of my job too. I kind of move in all three spheres. As a hobbyist beekeeper of over 30-something years, I've never fed a pollen sub to my colonies. Regardless of where I've lived, and regardless of what I've done, I've never fed pollen subs. Because as a hobbyist beekeeper, there's always been enough available in the environment for my colonies that I've never had to supplement what they get, and I also didn't have management strategies where I was trying to make them super strong for splitting more than I would have so that I could sell splits etc. So I would argue if you're hobbyist beekeeper and you're brand new, chances are you don't need to feed a pollen patty or pollen sub to your colonies at all. I will tell you, commercial beekeepers think about it from a different perspective. They're oftentimes times trying to grow colonies during a time of year maybe there's not a lot of pollen or a lot of high-quality pollen available. So they're trying to grow a colony when the colony otherwise maybe wouldn't want to grow. And so they feel feeding pollen subs is very useful in those cases. So I would argue that pollen subs have very specific uses. Now, I'm going to chase a science rabbit for just a little bit. In your own question, you said to me that... sorry, in the question that, I'm reading the question that the listener had written, the listener said to me, "Hey, I recall you saying that the helpfulness of pollen patties is not even proven." So Amy, that's a good point to discuss. And we need to have yet another episode on it. But in research that we've done here at the University of Florida, we have never been able to get any pollen patty that we've ever tested to have an overwhelmingly positive result for hives. I mean, the good news is that they've also not been overwhelmingly bad. We've never caused a problem with pollen patties. But we've never improved anything with pollen patties over doing nothing at all, which led to a series of research projects that we had with former master's student Emily Noordyke, and we've interviewed her on this podcast, you guys can check out that for more information. But that led to the production of a manuscript that Emily and I co-wrote and published that's basically a review of all pollen patty research everywhere, at any time. We'll make sure to link that article in the show notes. But to make a long story short, through that literature review, we found incredibly conflicting information where pollen patties sometimes did something, where a lot of times did nothing, and maybe even sometimes hurt colonies. So I would argue for the average hobbyist, maybe even sideline beekeeper, you'll never have a legitimate reason to feed pollen subs. Now, you may believe that you do because you want to grow colonies out of season, etc, in that case, I say, that's okay. But for the majority of hobbyists, you won't need them. And I would argue, especially going into winter, you wouldn't need them because that's not a time of year that you're wanting to encourage them to produce bees or grow anyway. So really what you have to be more worried about from a nutritional standpoint going into winter is carbohydrate reserves. So then that leads to another question. Should I ever use pollen subs at all? And again, for most hobbyists, the answer will probably be no, for a lot of sideliners, no, and then for commercial guys, a lot of them feel like they couldn't manage their colonies appropriately if they didn't use pollen subs. But I would say the jury is very much out on this topic. There's a lot that must be done to convince me that they're overwhelmingly beneficial in the majority of the cases. My guess is that they're beneficial, but in very specific scenarios, and in the complete absence of incoming pollen and things like that. But in your case, for purposes of this question, I would say no.

Amy 25:56
All right. So for the second question, I went to the Citrus County Beekeepers Association on Saturday, and one of the questions we had was this individual, she had gotten stung, and actually, she gets stung quite often, but from dead bees. And so she was asking me, after a worker dies, how long can her stingers stay active? And I'm like, "I'm not sure. Let's ask the question on the podcast, and we'll see if Jamie knows." So, what is that answer? Well, she needs to stop hanging out with dead bees, first of all. I've been stung by dead bees plenty and plenty and plenty of times. But I never have a pain reaction to it longer than something like 30 minutes or an hour or so after the bee has died. So I tried to look up an official, formal, scientific-based answer to this question -- Because you didn't know either?

Jamie 26:54
-- where someone's done it. Because I just didn't know. It's Stump the Chump, so I'm stumped. But, I couldn't find any research on the actual length of time. But what really happens is the shaft of a bee can always stick you. We collect samples of bees from all over the place for preservation purposes and research that we do in our lab. And I remember when I would comb through samples of bees that have been preserved in alcohol or refrigerator for some years, I'd get bees stuck in my fingers, from their stingers stuck in my fingers. So the bee would hang from my fingers, but I wouldn't feel anything. And that's because by that time, well past well, before that time, the venom is either dried up or is degraded. So the shaft can almost always stick in you, as long as the bee's got enough physical integrity, right? It hasn't decomposed too far. But I would say the venom is drying up or decomposing within minutes of the bee dying so that I've probably been stung by a bee at the 30-minute mark, where it's given to me the reaction that I've had if it had been alive, but after about an hour, it's usually, in most circumstances, not able to sting you. Usually. Well, it can sting you in the sense that you can get stuck by the shaft, but it's not able to deliver potent venom that would cause some sort of reaction. But I'm curious if you're out there listening, if you've been stung by a dead bee, and felt the pain longer than an hour after the bee was dead? Let us know in our social media because we can crowdsource this answer and figure out what actually is the answer?

Amy 28:23
Okay. So normally in a Q&A, we have three questions, and today everyone's going to get a bonus question because I received an email and it had two questions in it. And instead of just splitting it up, we've decided to just answer it on air today. So that's it. The last two questions that we have, I'll go through the third question first, but the individual did an inspection and they saw a capped queen cell, and then fast forward to a couple of weeks later, they did another inspection. That queen cell was torn down. And so the person is wondering, hopefully the queen got out or who knows what happens, and maybe they're on a mating flight. But how fast does a colony tear down a queen cell after the queen emerges?

Jamie 29:08
Okay, so there's a pretty quick and straightforward answer to this. When a colony swarms, and I will speak very much in generalities here, when a colony swarms, they're usually about a week to 10 days into producing queen cells. So they don't swarm and then have to start queen cells from scratch. So the

reason I'm saying that is when a colony swarms, there are already capped cells that contain queens, that are just a few short days from emerging. So in theory, a colony can swarm, and within a couple of days, the new queen can have emerged and found all the other queen cells in that hive, bit holes through the side wall, and stung her developing sisters to death. So in theory, within just a few days, you can get torn down queen cells because you've got a virgin queen running around the nest. In practice, it's usually though more kind of in the 10 to 14 day range. When I've noticed one of my colonies has swarmed, the next week that I work them, I will usually anticipate a new virgin queen will be running in around in the nest. So somewhere in that seven to 10 days, she'll emerge and then start killing her competition. So in that 10 to 14 days, you'll notice torn down cells. But like I said, in theory, it can take just a few days, depending on the age of the queen cells remaining in the parent hive at the time, the swarm leaves. So what you're saying, listener, in this question is well within the territory of normal, I would argue it's usually kind of in the queen emerges in seven to 10 days tells, cells are torn down 10 to 14 days, so usually in the one to two week range. But it certainly can happen quicker, depending again on the age of the cells left behind when the colony swarms.

Amy 31:00
So the second question, the last question that we have for today is will a daughter colony and a mother colony mate with one another, or is that too close to inbreeding?

Jamie 31:11
Okay, so you've got this situation where you've got, let's just use two colonies, as the questioner mentioned, a mother and daughter colony. You've got two colonies in the same apiary. Alright. So that's all you've got, you've got no other bees, you've produced no other colonies, etc. Now, remember, virgin queens don't mate in hives. They mate flying through the air. And what they do is they go to areas where drones from the colonies around the area are congregating. We call these areas, conveniently enough, drone congregation areas. So imagine this scenario where you have two hives in your backyard. And the second hive is a split or a daughter from that first hive. So now, you're surrounded in the environment, probably by a few feral colonies, but also maybe by a couple of other beekeepers. And all of those colonies, yours included, are contributing drones to these drone congregation areas. So when your daughter colony produces a new queen, and she goes out to mate, if there are very few colonies, in the environment, either from beekeepers or feral colonies, then there's a pretty good probability that that queen is going to mate with drones from her own colony, or drones from the other colony that you have in the apiary. So in that case, there's a reasonable probability that you'll get some inbreeding, right? If you've only got two colonies in your apiary, they're both related, and there are no other colonies in the flight path of these queens, then you're going to have inbreeding. But for most beekeepers, you'll have a reasonable density of feral or beekeeper-managed colonies, to where there's a reasonable probability that your queen is going to mate with drones that are not related to her. I mean, you could ask the same question if you just have one colony. What happens if you have one colony and the only drones available to her, the virgin queen, are her brothers? So that's why you really want to have multiple colonies. And also, if you live in an area where there are feral colonies and other beekeepers, all of this is advantageous to you because it helps you avoid inbreeding. But signs of inbreeding are pretty obvious when that new queen comes back and starts laying eggs. She will usually have a very spotty brood pattern. Worker bees can detect inbred eggs and they will abort them from the

hive. So that's actually one of the causes of spotty brood patterns, not the sole cause, or even the most significant cause of it. But if your queens are heavily inbred, the worker bees are aborting those eggs pretty quickly. And in fact, your queen can be the best egg-;aying queen on planet Earth. But if she's fully mated with exclusively her brothers or her relatives, the worker bees from her hive are taking out those eggs as fast as she's putting them in. So it doesn't always have to speak to queen quality. It's not like she's failing to lay eggs, it's just that there's a high probability, a high percentage of them that are inbred, so the workers are taking them out.

Amy 33:58
Alright, so those were our questions for today. Keep those questions coming. Jamie, I feel like in our inbox, out of every 10 emails we have, eight of them say something about the podcast or have a question about the podcast.

Jamie 34:13
Well, that's good. I'm grateful you guys are listening to our podcast and asking us questions. We couldn't do this, if it wasn't for you. So thank you so much. Thank you. Thank you. Thank you so much.

Serra Sowers 34:29
Thank you for listening to Two Bees in a Podcast. For more information and resources on today's episode, check out the Honey Bee Research Lab website at UFhoneybee.com. If you have questions you want answered on air, email them to us at honeybee@ifas.ufl.edu or message us on social media at UF honey bee lab on Instagram, Facebook and Twitter. This episode was hosted by Jamie Ellis and Amy Vu. This podcast is produced and edited by Amy Vu and Serra Sowers. Thanks for listening and see you next week.