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SPEAKERS

Amy, Jamie, Stump The Chump, Serra Sowers, Guest

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 00:46

Hello, everybody, and welcome to this episode of Two Bees in a Podcast. I'm really excited to be introducing you today to Steve Jimenez, who is the mentor and founder of Hives for Heroes. Steve is out of Houston, Texas, and actually Steve and I met at the American Beekeeping Federation in Jacksonville in January of 2023. We started talking, we were talking about his programs, we were talking about collaboration, and I'm excited to have him here today to talk about Hives for Heroes. So, Steve, before we actually get into the Hives for Heroes, why don't you tell our audience a little bit about yourself and how you landed in the beekeeping world?

Guest 01:29

Awesome. Well, thank you, Amy, and thank you, Jamie, for having us on this podcast. Very excited to be here to share what we do. And like you said, a little bit of background of myself is I'm a dad of three amazing girls. Also, back in the past, I was in the Marine Corps deployed overseas, came home, and I got into beekeeping because I was not in a great place and did not have a very good transition from my service. A friend invited me to go to a beekeeping experience, and it completely changed my life. So I really credit bees for saving my life. We just started talking about it, and before you knew it, people started getting involved. We've created a large family throughout the United States. So I'm very honored and privileged to be able to represent about 35-3600 people around the United States inside Hives for Heroes.

Jamie 02:19

Steve, I know that our listeners are going to really like this story because I've heard of similar efforts around the country, veterans getting involved with beekeeping. So I'm curious, about how long ago was that? And of course, you're here to discuss Hives for Heroes. So I'm going to ask you, if you don't mind, telling us a little bit about the history of that organization as well.

Guest 02:37

Yeah, great question and a consistent one that we have, which is when did we start? Like, how did this journey begin? That was in 2018. My friend, like I mentioned, had invited me to an experience here in Houston, Texas. It was really quite cool. We went on to this rooftop over a yoga studio, so there's a lot of positive energy there. We're suiting up, right? We're suiting up, and I'm starting to feel these things of anxiety and fear of the unknown and things of that nature. But I really trusted the people in which I was with. So as we started cracking open these hives, there's just this amazing beauty of these bees, the sounds, the movements, all the overwhelming experience, yet somehow incredibly calm. So the friends that we had that were there, there was a handful of us, and we started talking about what this looks like for ourselves individually. So almost like peer-to-peer therapy, if you think about it, and then how to create something that could bring others into it. Back then, it was really how can we do this in Houston? How can we be an organization? It was a loose organization. But how can we be a club, a bunch of friends that got together and spent time together learning this amazing art and science of beekeeping? It just spun and spun and spun. Before you knew it, we had a small Instagram page just for ourselves so we could share with each other. We, of course, created the 501(c)(3) in August of 2018. And then COVID hit later on, so everything kind of went -- I would say down but not really -- down because we thought that this was not going to allow us to be together, but truly inspirational when you think about COVID shutting everything down, but us being outside in nature, six feet away from each other. We got to still share these experiences with the bees. We actually grew as an organization. So sharing our stories was the biggest part of the growth of Hives for Heroes, by literally being able to put ourselves out there, overcome the fear of, maybe, public speaking, for example, for a lot of us overcome getting outside of your own doors and becoming a really awesome family. As we continue to grow throughout the United States, Nevada was our first state that really latched on. Miss Debbie Gilmore out there invited us to their conference. And before you knew it, we were speaking at conferences all over the country, looking for mentors throughout the organization to connect those veterans to mentors throughout the United States.

Amy 05:26

Yeah, so I know there are a lot of really great resources out there -- great resources, in general, but also catered to veterans. We, at the University of Florida, work with the Skill Bridge Program, which is with the Department of Defense, and we provide opportunities for veterans to be able to come and work with us for six months before they retire from the military, and kind of transition into homesteading after their time in the military. Again, there are so many great resources, lots of programs, lots of workshops out there. I was wondering if you could tell us about how Hives for Heroes collaborates with other organizations. Maybe tell us a little bit more about Hives for Heroes in general. What does that look like when someone becomes involved? And how does the program support veterans and first responders?

Guest 06:19

Wow, Amy, that's a loaded, amazing question.

Amy 06:21

I know. I just asked so many questions to you. I'm so sorry. Usually, it's just one.

Guest 06:26

It's so good. Maybe we have a conversation back and forth on this to see how we can best utilize all these. I think that first part was there are a lot of resources out there that are available to veterans and first responders throughout the United States. And all these organizations have, I would say, either core values or a specific mission set. So when it comes to a veteran going and looking for those or trying to find something that's right for them, really look into their background. I'm glad that y'all are asking these questions because, again, Hives for Heroes is run by veterans, and first responders, founded by veterans and first responders. It's a great place to be because you know you're kind of home. When this organization took off, it's really about building relationships and having family outside of your own. Because oftentimes, as our heroes understand, you don't always pick your family. But in these circumstances, you actually get to be around people of high character, high caliber, hard-working, diligent, dedicated, and disciplined. There are a lot of really cool types of words that we can use on the intangibles that are for our heroes. But I would look into the background of what you are specifically looking for. So if it's maybe an all-female organization, look that up on Google, and then go through their paperwork and documentation, like look up that organization and then 990. 990 on that is going to share with you all the stuff that they actually put their money towards. As a 501(c)(3), it's open documentation for you to do your research on those organizations. So that's a cool tool, in order for you to know where you're going and what you're doing. Google is a great platform for trying to find resources that are to you. But the best platform you have is your peer. So on our Facebook group page, for example, we have a ton of beekeeping stuff, but we are a people organization. So we have a ton of people on there sharing their resources and their experiences of organizations that might have supported them in the past, or organizations that are growing and or can support them in the future. We are also building out a resource page, which should be out in the next week or so. That's going to have the state resources by state. For us, on the beekeeping side specifically, we'll have all the national organizations there as resources as well. We're going to have veteran and first responders-specific resources. So we'll go through and, again, word of mouth, figure out some awesome organizations that are out there to support your transition, or the veteran's transition or the first responder's transition from service. They'll be able to click on those and have direct links. We don't want any kind of compensation or anything from that. We just want the veteran to have the resources that they need in order to succeed. And that could be a club or school, maybe even just the VA number, right? Sometimes we forget that there are suicide hotlines out there, there are the VA resources, there is the Wounded Warrior Project, there is Hope for the Warriors, and things of that nature that are there for your success. And since we're talking about those resources, it's very important to understand that our numbers for suicide are very high in the veteran and first responder community, which is why we do what we do. We want to be there for each other and not make a permanent decision on temporary circumstances. So how we do that is talk to each other a lot, right? But there's also some times where you need support outside of ourselves. We are not therapists or anything of that nature, we're not medical representations of anything. So we want to make sure that you have the resources that you need to succeed and those will be on our website as well. Those numbers include upwards of 45 veterans per day taking their life. The VA will report 22 a day. But there are some studies out there that say it is higher. We believe that's just not right. We believe there is a solution for that. For us, we believe in the healing power of nature and peer-to-peer support as a people organization that we are, as the conduit

of bees help us through this. But really, that is entirely too high. Our veterans and first responders deserve better than that, and we want to be able to be a resource for that.

Jamie 10:52

Gosh, I've got so many follow up questions that I want to ask, but I'll just try to keep it simple and keep it to script. I'll ask two, one off-script and one that you had agreed upon before we started. But the one off-script is this is such a great thing to do, it's really neat to see, essentially, the healing power of beekeeping in the lives of individuals. So I'm curious, are you aware of similar efforts in places outside of the US? And incidentally, my motivation for asking that question is we have a lot of international listeners, and they're hearing you talk about this system that you have set up for veterans here in the US or first responders in the US, but are you aware of other similar systems globally?

Guest 11:34

The full answer is not as much as I'd like to be. But we have been reached out to by multiple countries.

Jamie 11:41

Oh, that's so great.

Guest 11:43

So we started working with Australia. Canada has reached out with a cohort as well. The UK, India, and Ethiopia -- so there are many countries that are looking at this, again, as you mentioned, the healing power of bees, the nature about it, getting ourselves off the couch, getting ourselves outside, there's healing in that in and of itself. So going outside, being in the sun, having a positive hobby, maybe turning it into a career -- could be. That's not for us to decide, but it's getting out into nature. Disconnecting, although we're on a podcast right now, this is an amazing tool for communication, but it's also not what we should rely on. So being able to go outside, talk to your friends, do something that's incredibly rewarding. There is that healing power in and of itself. We're healing from trauma in a lot of ways, and that's not just veterans and first responders. That's just the human condition. Healing from trauma is something that is very important to do to have a fulfilled life. So as we start working with these other organizations, we're looking at not only supporting them in their growth but, for example, Hives for Heroes in those countries were actually run by people in their countries. It's not an American going to their country to then tell them how to do it. It's us guiding and supporting them through their culture, and the things that they might find important that we don't even know about, which is also why we have state leaders all across the United States because we, from headquarters, cannot see things that are going on all across the United States. But those that have feet on the ground can. They are already involved, they're already committed to their communities, and they can see those things that we can't, but now it gets fed back, and we can provide resources to those areas that are specific to their areas. So we call ourselves a hyperlocal global organization. As it continues to grow, with our emphasis based on sustainability and conservation, again, it's the people, the network and the relationships that end up making the mission and overall vision of the organization successful.

Jamie 13:58

I really love that. So how can veterans and first responders become involved? I mean, you mentioned already that you can find out about your organization by going to your website, but how can they join this effort?

Guest 14:09

Joining the effort as a veteran or first responder in this specific instance of beekeeping would be going to HivesForHeroes.com. You're going to fill out a very simple form. The form does not have a PII all over it. What we're trying to do is get your address so we can connect you to a mentor in your local area within 30 miles. This is hugely important because our core values, we haven't spoken about them yet, but we run the organization on our core values, and that is connection, purpose, relationships, and service. We do all of those things legally, morally, and ethically correct. We ask anybody in our organization, if you have a question about legal, moral, or ethical, then don't do it. If you feel a gut feeling that it might not be moral or ethical, don't do it. So what we asked for is just go to the website, put your information in, and Charlie will end up matching you throughout the United States, again, within 30 miles. Connection is the piece of actually connecting to each other. You're connecting to our organization, which means you'll connect to the Facebook group page, you'll connect to us on social media, but you also have an email chain start going. Oftentimes, we'll end up reaching out and calling you because we just want to say hi, and that's a good thing. We're just trying to have that connection piece again. We say connect to yourself, again, because oftentimes, we forget about connecting to ourselves, connect to each other, and connect to nature. All hugely important. And then we have our purpose, right? So we're fulfilling a purpose bigger than ourselves. Being able to steward bees is fulfilling a purpose bigger than yourself, whether that's through pollination or conservation or just your neighbor getting some honey, that is filling a purpose, but it's also that healing purpose for us. And then we're building those relationships. So because you fill out that application, you are now starting to build a relationship as we can connect you to somebody in your local area. We'll also give you other resources. But connecting to that person in that area, you want to literally build a relationship in your community, and you want it face-to-face. It's super important. So we can have relationships all over, but it'd be really nice to get with a mentor in your area that already has the gear, the equipment, the time, the knowledge, and now lowers your cost of entry. You're just getting PPE, and a bee suit and gloves, you're going into their environment as the mentor, and they're teaching you the ways in which they've done it. We ask our mentors to teach as they wish they would have been taught, which is kind of a fun twist on things. Then, that service. Serving others. So our mentors are serving, our newbies are serving the community, our staff, our board, are all serving the mission. So the mission becomes front-leaning, connecting veterans and first responders to beekeeping throughout the United States, providing connection, purpose, and relationships through access, resources, and funding for your success.

Amy 17:04

Jeez, Dave, you're just so great at speaking about the organization and all the benefits that it does for veterans and first responders. I can just tell that you're very passionate about the organization, you're passionate about connecting, building those relationships, and really helping others, so thank you for that.

Guest 17:25

Yeah, we have a lot of people to thank for that. The organization would be nothing if it was singular. It wouldn't be anything if it was just in Houston. I mean, you have hundreds, like you as the veteran, you as this first responder, have hundreds of leaders. I'm not talking about just the people in the organization that are that are utilizing the services, which we love. But there are hundreds of leaders in communities all over the United States that are doing all these things, boots on the ground, caring

about you that you haven't even seen or might not even meet. But we know your story because our stories are very similar. It's a unique story with different circumstances pertaining to individuals. We feel that loss of mission, loss of purpose, loss of relationships that you were either overseas or in training with, those things really matter. As we transition from the service, we talk about two different types of people, right? You have the veteran that is coming back from, maybe eight months or 12-month deployments, and then you have the first responder that has to come home every day, maybe seeing that trauma on a daily basis and having to cope with that differently. So, as we speak about going into a hive, it's very similar to a veteran or first responder gearing up, going to work, putting on that uniform, maybe kicking in a door, trusting your gear, yourself, and your buddies, following a process in which you know, having complete chaos, but still following that process, working together to accomplish a mission, and then you find confidence in that and that confidence brings either success or joy or whatever that looks like to you. So we find it very similar to suiting up, trusting yourself, your gear, and your buddies, walking through an unknown situation, following an amazing process, find success, joy, happiness, whatever that looks like for you, even confidence. And those things really matter. That's what the organization is about. We joke around, it has very little to do with beekeeping because we want to provide the beekeeping platform for connection, but the beekeeping experts are really not us. We're a people organization. Beekeeping experts are you guys. That's why we went into a collaboration with y'all about we don't want to do the education. Y'all got that. Y'all are amazing. Y'all are like the best in the world at it. So why would we want to do that? So it's been really cool to stick to our strengths, and then allow others to come in and bring their strengths and build, really, a world-class organization.

Amy 20:06

Yeah. And that kind of leads me into the next question that I have. For beekeepers who are not veterans and not first responders, how can they be involved? How can they support? What can beekeepers do to help?

Guest 20:22

That's a that's a wonderful question. There's a lot of information, again, as I said, do your research. So look at us online, look at everything that you need, so you can feel comfortable working with us at Hives for Heroes. What we need currently is a lot of scholarship dollars. On September 15, we are having a clay shoot here in Texas. We are looking for corporate sponsors still, so title sponsors and things of that nature. We want to be clear, the money is going to scholarships for the Bee U scholarship, which is on the website, and the Bee More scholarship. The Bee U scholarship is a scholarship to all veterans and first responders in the United States. So I'm saying it again, all veterans and first responders in the United States to get education from the 13 Master beekeeping programs. This is huge, right? We are giving you the opportunity, right? Because of our amazing donors and the amazing sponsors in which we have, they are going to be paying for your education as a reimbursement. So I'll be really clear on that as well. Reimbursement means you are putting your skin in the game and you're paying upfront, and every time you succeed, you're going to be rewarded by the refund of those costs. Hugely important to understand this is an earned organization, not a giving organization. We're not just giving dollars out. We want you to earn it. There's a sense of satisfaction, there's a reward in that. But at the end of the day, all your education will be covered at no cost to you. So thanks to amazing organizations like Hewlett Packard Enterprises, TechnipFMC, family offices, financial practices, foundations, and such of that nature. They're really grateful -- I mean, they're really gracious and able to provide literally scholarships for all veterans and first responders throughout the United States. So that clay shoot is

going to be September 15 in Rosharon, Texas. Again, we are still looking for more sponsors. So if you're interested, please go to the website at HivesForHeroes.com and look under the clay shoot tab and you'll have all the information that you need. Secondly, the mentors. We need more mentors. So if you're listening to this, please go to the website and say "Hey, you know what? I'll serve one person. One person in my area." That's hugely important, creating a relationship in your local area. We are always looking for mentors. We have significantly more newbies than mentors. There are more people that want to learn beekeeping, which is beautiful and awesome, than there are to teach. As our beekeeping population continues to age, we need to pass off knowledge. One way of that is through the education programs such as what you have created at University of Florida and the Master Beekeeping program. Another way is simply mentorship, hand-to-hand, working together in a yard and mentoring each other and passing off tricks of the trade or whatever it is that you think. We would be very grateful if you'd go to the mentor page and sign up as a mentor. Any other kinds of collaborations that you like, well, we're very much open to. We have a forum on the website under the collaborations tab. We're looking for institutions and universities like we have with you guys. We look for corporate programming, corporate hive management, and also public and private collaborations. We have done things such as cobranding on Mead, cobranding on beer, cobranding on products, and we've worked with organizations that do givebacks of profits for their organizations. And so we're very, very grateful for all those that have given. It's not just the mentoring and beekeeping, but we have to sustain the organization. And one of those ways is those dollars that many people can contribute just a few bucks, and then overarching things get better and better for the veteran or first responder.

Amy 24:26

Amazing. So as you start to wind down, was there anything else that you wanted to share with our audience?

Guest 24:32

Well, first is a massive thank you to everybody who has been a part of the organization. We are all one small part of this organization. We love how it operates. We get to listen to each other, talk to each other and just continue to better each other. We want to thank you guys for having us on Two Bees in a Podcast. Dr. Ellis is somebody that I've wanted to meet for a long time. Amy, had the pleasure of finally meeting you in Florida, so thank you for the opportunity to represent Hives for Heroes, and literally, the hundreds of leaders and the thousands of people throughout the United States. We are very, very grateful. We have grown at a large and a quick rate. But we believe we have the right structures in place in order to keep being successful and actually grow more. Most of the things that I would have as questions for you guys, and maybe the audience doesn't know stuff like that, but it would be like, what drives you to beekeepers? How did Dr. Ellis come up with this whole Master Beekeeping program that is now one of the best in the world? I have more questions for y'all than y'all probably have for me.

Jamie 25:39

Well, we could we could do a whole nother podcast episode. I wish I could say that I came up with a Master Beekeeping program idea. It existed, I believe, first at Cornell and other universities had done it. I was from Georgia and worked at the University of Georgia and saw Keith Delaplaine do one in Georgia. So, when I moved to Florida, we just started a similar program. I think one of the greatest accomplishments we've made with the Master Beekeeping program is moving it online. That's allowed us to just grow it really exponentially. Of course, we just love the fact that you guys are advocating

education for veterans and first responders and making it possible. We're just happy to be a part of it in that capacity. I know my colleagues around the country would say very similar things. We just love providing content and educational opportunities for folks whose lives are going to change so significantly.

Guest 26:30

Wow. Very eloquently put, and we greatly appreciate the online forum. One of the issues that we have in the veteran community is those who may or may not suffer from PTS often don't want to be in large cities, for example. And so you move to rural areas, and then, the amount of resources really aren't available to you. So, we've come up with that issue just by trying to find a singular mentor in their local area because you move to northern Montana, you want to be left alone, but then you still need resources to be successful. And so programs like you got there at Florida and that y'all are continuously sharing that. I see content from y'all on a consistent basis. I don't know who the mastermind behind that is, but it's really good. You have the Two Bees in a Podcast, you have the Facebook group page going, you have things posting on a consistent basis, and you have your newsletters. Those are all really good things that we forward and we share, and in the future, as we have that resource page that we were talking about, there's also going to be an events page. So that events page from all our state leads is going to be, basically, this massive source for anybody, not just a veteran or first responder. It's completely free and open on the website. Go to the events and you can find anything that's in the country. If there's a webinar or something like that, from you guys, or like you said, Georgia, North Carolina does a lot online, all the way to the commercial beekeepers, all those things are pieces and parts to the success of what that individual wants to drive down their levels. Some people might not like education. Okay. It's an opportunity, not a directive. Some people want to go left seat right seat with a beekeeper. Awesome. Some people don't want to do that at all. So we just want to provide opportunity and options for those to pick their own path and create their own identity in beekeeping.

Amy 28:25

Steve, thank you so much for being on our podcast today. We're really excited to have you. Thank you so much for everything that you do for veterans and for first responders. Thank you for your service. Thank you to all the veterans and first responders out there who are helping organizations helping each other, being there for each other. It's really great to see that we're able to connect through beekeeping. So Steve, thank you so much, again, for everything that you've done. Thanks for joining us today.

Guest 28:54

Thank you, Amy. Thank you, Dr. Ellis. Appreciate it. See you next time.

Amy 29:07

Well, I was happy to have Steve on today. Again, just listening to him talk about the organization and how passionate he is, that's what we need in this world, Jamie, right? I just feel like we just need more people who are excited about bringing all these people together for a great cause, especially when it impacts those who are serving our country and those who are just out there fighting for us.

Jamie 29:33

Yeah, you said it right there. You use the word passion. One of the things that popped in my mind is that Steve's very passionate about what he does. Another word that I use, which is a social insect word,

is altruistic. He's altruistic. He's doing things for other people without a clear advantage for himself. And you know that the news these days is so full of all the bad things that are happening. It's nice to see people can care for each other and really want to help. In this particular case, it's called Hives for Heroes because there are veterans and first responders, folks who regularly deal with very traumatic situations. Steve was just interesting. Grounding those folks and helping them love something and build a community, it's just really great. It's neat that bees can be the center of that. I'm just really excited about the work he's doing. And I know similar work is going on all over the US and all over the world. It's just exciting to see it.

Amy 30:27

And the other thing, too, is I don't know if our listeners were paying attention to that part, but every single veteran and first responder in the United States can go through these Master Beekeeper programs for free, which, it's not free in the sense that they're just given to them. They pay for it upfront, but they do get reimbursed. I think, I mean, that's wild. That's extreme. That's really intense. I'm hoping a lot of people will take advantage of that opportunity.

Jamie 30:55

Yeah, I love the idea of earning it. So it's not like they pay for the individual's registration in advance because then the individual could either do it or not do it or slowly do it or whatever. They're like, if you pay for it, and you do it, we will reimburse you for costs for it. I just love that idea. You have to earn it. But once you've earned it, your efforts will be rewarded. And, gosh, what a way to do it. A lot of forethought went into that. I really like that idea.

Amy 31:25

Absolutely. So with our resources, we will be sure to link the website on our social media page, also on our additional notes and resources so that the veteran and first responder beekeepers or soon to be beekeepers out there will know where to go for that information.

Stump The Chump 31:46

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

Amy 31:56

Welcome back, everybody, to the question and answer segment. Jamie, the first question is this person was doing an inspection, and they did not see a single egg. There was some patchy capped brood, there was some drone brood, there was almost a fully developed larva, and this person is planning to buy a mated queen and install her. Basically, they're just wondering, is this the right course of action? If they haven't seen an egg, what should they do? Should they buy a mated queen? Is it going to succeed? What are your thoughts on this?

Jamie 32:30

Yeah, so when I suspect that a colony is queenless, of course, this is a little bit more difficult for me to say, I've been keeping bees for so long, and I can find queens. But the questioner here says they've been unable to find the queen. But I would say, when I suspect I have a queenless colony, the first thing I do is look for eggs. If I do not see eggs, then I can assume that there has not been a queen in that hive, at least in the past three days. While I can't guarantee that there's not a queen in this

individual's colony, if you listen to the story, I didn't see a single egg, there was patchy capped brood, there was drone brood, and there was a bit of almost fully developed larvae, it sounds like very little brood, all of the brood that's in there is older, there were no eggs and there's a couple of supersedure cells, all of these are signals to me that the colony is probably queenless. If I saw this, I would do one of three things. I would either let them make a new queen with one of their supersedure cells, and if I choose this option, I would go through all the supersedure cells available in the nest, and I would move remove all of them except the largest one. This is an overgeneralization but generally speaking, the larger the queen cell, the better the queen, right? They got more attention, they're a bigger queen, etc. So I'd remove all the supersedure cells except one, so that's option one. Option two is I would remove all the supersedure cells and purchase a queen, which is what the questioner is asking is that okay to do. That's certainly okay to do. The only catch with this is if your queen is still present, but not laying, the bees might kill the queen that you purchased to put into that hive. So, it's a bit of a gamble. You'd want to make sure for sure that she's not present. Option number three is if I had any nucleus colonies or nucs available, I might use a nuc to requeen this hive. So, basically, my argument is you need to requeen it. You need to either let it happen on its own, option one, buy one and put it in there, option two, or requeen it with a nuc that you might have, option three.

Amy 34:37

You know what? We've been kind of playing around with queen-rearing here, Jamie. I've been playing with grafting, and I will say, I think that's my life calling. Grafting queens.

Jamie 34:46

You'd probably be really good at the queen-rearing process. I think it's one of those process that you got to think a lot about and time it meticulously, and I think you've got all those skills necessary. I'm just wondering what your queen business would be called.

Amy 35:00

What would my queen -- I don't know. I don't know. We've got to think about that. So if any listeners have ideas --

Jamie 35:05

Please don't say Amy's Queens. No Amy's Queens.

Amy 35:07

No. No, no, no, no. No, no. It'll be something way more original and fun. All right. What were you going to say?

Jamie 35:19

Queens by Amy.

Amy 35:21

Original. Thanks, Jamie.

Jamie 35:23

Yeah, original.

Amy 35:25

Okay, so the next question that we have is about *Apis mellifera capensis*. I think, just in the past, we have a lot of questioners asking about workers laying. Just workers laying. Laying workers. *Apis mellifera capensis* is a little bit different, and we've kind of gone into it. But can you talk a little bit more about *Apis mellifera capensis*? You are in South Africa as we record this right now. Can you tell everybody what it is? Are you working with it while you're in South Africa? How is it different from other subspecies of *Apis mellifera*?

Jamie 36:03

Yes, so it is funny and serendipitous that I get this question now because I literally am sitting in an office at Rhodes University in Makhanda, South Africa, where Caitlyn Kleckner, a PhD student in our lab, and I are here setting up some field research for her. The reason it's serendipitous is because just like you note, Amy, one of the subspecies of honey bee that lives here in South Africa is the Cape honey bee. It has a distribution from Cape Town, which is southwest South Africa, along the southern tip of South Africa, about almost to Port Elizabeth. If you look at a map, and you're listening to me out there, look at a map, you'll kind of see its distribution along that little stretch along the coast. It's a really interesting honey bee. It's one of over 30 subspecies of honey bees. We use *Apis mellifera ligustica* in the states, that's the Italian honey bee. There's *Apis mellifera mellifera*, the German honey bee, *Apis mellifera scutellata*, the bee at home that they call the killer bee, the Africanized honey bee. Well, *Apis mellifera capensis* is just one of those 30-some-odd subspecies. The interesting thing about *capensis*, though, is while most colonies of *Apis mellifera* effort go queenless and their workers start to lay, those workers produce drone offspring. Workers cannot mate, therefore, they cannot fertilize their eggs. So laying workers produced drone offspring. So while most workers for the vast majority of the other subspecies produce drone offspring when they become layers, *Apis mellifera capensis*, the Cape honey bee, actually can produce female offspring. I think the magic in this whole thing is that Cape honey bees cannot mate. Their workers cannot mate. So it's not like they're fertilizing their eggs to produce female offspring. So there's another thing that happens for them to be able to produce female offspring. The process is called thelytokous parthenogenesis. Parthenogenesis is essentially the process by which an unfertilized individual can become an adult. So drones are produced through arrhenotokous parthenogenesis. That is how they come into existence while workers come into existence through parthenogenesis through a process called thelytoky. To shorten it, and hopefully make it understandable for all our listeners all around the world, we know that there are two types of cell division. You probably learned about this in biology, right? Mitosis is when regular cells divide, your skin cells, your kidney cells, your heart cells, etc. So they divide through mitosis. Meiosis is the process of producing sex cells. So sperm and eggs are produced through meiosis. So we know that eggs and sperm are haploid, right? They carry half of the chromosomes that the parent has. The same is true for queens. When a queen lays an egg, it's getting only half of her chromosomes and a drone contributes sperm and that sperm is haploid. The queen's egg is haploid. And when you put two haploid cells together, you get a diploid cell, which produces a worker or a female. Well, Cape workers don't do it that way. In the process of creating a haploid egg through meiosis, there is one step where half of the chromosomes in the nucleus don't split into a second cell, they just become inactive and go to the edge of the nucleus. That inactive set of chromosomes is called the polar body. Well, in Cape bees, that polar body can reactivate and come back down within that nucleus and essentially recreate the double set of chromosomes that you need to have a female. So without fertilization, Cape workers can lay

diploid eggs. And again, it's because half of the chromosomes that became inactive and formed this polar body reactivate and essentially become that second set of chromosomes in the nucleus. So essentially, when Cape workers lay eggs, they are laying eggs that are exact clones of themselves. Their offspring are clones of themselves. And to make Cape workers even more interesting, let's just say for the sake of this discussion that there are five Cape workers laying eggs in the nest. Alright, let's say the colony is going queenless. These five workers are laying eggs. The offspring from worker A can detect eggs from workers B, C, D, and E, and she can selectively abort those eggs in favor of her own mother's eggs. And that process is called policing. So within a colony of Cape honey bees that has laying workers, there are almost subcolonies within the nest, where in this little territory you've got laying worker A and her offspring policing and keeping out eggs from other laying workers. And in this territory over here, you get worker's offspring from laying worker B doing the same thing. You almost get subcolonies within a colony. So this this is an amazing process. But it's also detrimental here because Cape workers can leave their colonies and move into colonies of other honey bee subspecies and take over those colonies. They're considered social parasites. They take over these other colonies and those other colonies can eventually die. So Cape worker honey bees are absolutely fascinating. It all boils down to two things: their ability to produce females without mating through that process called the thelytokous parthenogenesis and their ability to police eggs, which contribute to this social parasitism that can be quite a problem for beekeepers.

Amy 42:25

Okay, I have one comment and one question. So my comment is that that was probably the most scientific answer on a Q&A that you've ever had on all of the Q&As that we've had since 2020. That was my comment.

Jamie 42:39

It's such a complex system. It's hard not to be scientific when I answered that, but you're right, Amy, it was.

Amy 42:45

I'm like trying to keep up, thinking about biology and thinking about meiosis and mitosis and my brain hurts. I just immediately go back to all the days that I had to do an exam in those classes. But my question is, so I've actually had this question a lot when we talk about *Apis mellifera capensis*, why even have a queen? I mean, what's the point of even having a queen if those workers are creating drones? Sorry, the workers are creating basically clones of themselves?

Jamie 43:15

That's a very important question, Amy. That's a great question from the biological perspective. It boils down to the really simple fact, even though workers can produce workers, multiple laying workers cannot keep up the egg output of a single laying queen. So even though colonies of laying workers can produce female offspring, the colony will ultimately dwindle and die. In fact, here in South Africa, they call it the Cape bee phenomenon. It's actually a problem here so that when laying workers move into other colonies and take over those colonies, the colony's ultimately doomed. It might happen slower since they're able to produce some offspring that are fully functioning offspring, but it's ultimately doomed. To make it even more interesting, colonies can produce queens from Cape laying workers the same way they can produce workers from Cape laying workers. So in theory, they can requeen

themselves through their workers, but, of course, why would they want to because they think they have a queen because they're kind of like workers. So it's really a fascinating biology. We're not here actually studying that, although those bees are just right next door, and maybe we will jump into it someday. But it's just one of the benefits of being able to work in South Africa and see these truly amazing bees.

Amy 44:29

So cool. Okay, so the last question I have -- so we're kind of bouncing back and forth, the first question was about how we should add a new queen, the second one was about *Apis mellifera capensis*, the third question is back to queen. So the questioner is looking through queen-rearing texts, they're looking at when to put the queen cell into their mating nucs, and they're wondering what happens if a beekeeper purchases a queen cell or what happens if we put queen cells into a mating nuc earlier?

Jamie 45:06

This is an interesting question as well, because if you've ever grafted queens, you're grafting queens that are somewhere in the neighborhood of 12 to 20 hours old. That's kind of the ideal range. So that means they've already been an egg for three days, and now they're half a day to a day old. So they're somewhere in the neighborhood of three and a half to four days old if you count the egg stage. And you want to time the development and the movement of that queen cell amongst the different colonies, the starter colony, the finisher colony, the mating nuc, in a pretty regimented timeline. A lot of folks say, "Well, once that cell is capped, why can't I go ahead and move it to the mating nuc? Why do I have to wait a certain amount of days?" The reason for that is right after the cell is capped, that queen is actually pretty stable. In fact, she's stable while the cell's not capped, unless you shake it hard, and she falls out of that queen cell. Once it's capped, you've got about a one-day ish grace period where the queen is pretty stable. But then she enters a phase over the next few days, where she is very sensitive to movement or jostling. Jostling those cells around too much can cause her to fall within that cell, lay up against the sidewall of the cell in a way that's not great or whatever, and ultimately, this can damage her wing production, it can damage a lot of the characteristics. So the reason that queen producers kind of have it timed to not move those cells into mating nucs until there's about two days or a day left to go is because they're trying to get past that sensitive stage of queen development in that cell. So basically, it's okay to move cells around pretty easily through the first day of it being capped. But then you enter a few-day window there where you don't want to move the cells at all because that can damage that developing queen. That's generally why the recommendations come out. Now, of course, if you're really careful with the cells, it's not a big deal. But if you're having to move the cells from one location to another or walk them across the yard, there are just a lot of things that can go wrong. So the general recommendation is just not to do it until a day or two before that cell, that queen is due to emerge.

Amy 47:08

Yeah, and in a previous episode, I think it was episode 135, we had Ellen talking to us about shipping queen cells. Remember that? So, yeah, I would encourage our listeners to go back and listen to that episode to just discuss a little bit more about that whole process.

Jamie 47:26

Yeah, because she's going to no doubt talk, Amy, about those sensitive days. That's a really good recommendation on your part.

Amy 47:33

Thank you. Thank you. All right, everybody.

Jamie 47:37

Applause, applause.

Amy 47:38

Thank you so much for your questions. Don't forget to send your questions into our email. We love receiving the questions that you all have. It's fun for us to go through the questions and answer them on air. So we appreciate it and hope to see more questions soon.

Serra Sowers 47:53

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.