
Living Homegrown Podcast – Episode 94 The Magic of Mason Bees

Show Notes are at: www.LivingHomegrown.com/94

Theresa: This is the Living Homegrown podcast, episode number 94.

Announcer: Welcome to the Living Homegrown podcast, where it's all about how to live farm fresh without the farm. To help guide the way to a more flavorful and sustainable lifestyle is your host, National PBS TV producer and canning expert, Theresa Loe.

Theresa: Hey there, everybody. Welcome to the Living Homegrown podcast. I'm your host, Theresa Loe, and this podcast is where we talk about living farm fresh without the farm, and that just means we talk about preserving the harvest, small space food growing, and other simple ways that you can live a more sustainable lifestyle. As always, if you want to dive deep into any of these topics or learn about my online canning academy, just visit my website, LivingHomegrown.com.

Now before I dive into this week's topic, I just want to mention that I have some really cool free training with tips and strategies that is going to be coming up in the next month in regards to growing your own food and living a more organic, flavorful lifestyle. If you're a fan of this podcast and I'm assuming that you are because you're listening, well, I don't want you to miss out on this. I've been working on something that I think will take the podcast and make it to come to life for you. In fact, that's actually the point of my project and to take the topics of this podcast and go bigger and deeper and give you access to me and more experts in a more intimate way.

I'm super excited about this project. It's something I've been wanting to do for a super long time, so I'm not going to give you all the details right now and that's not because I'm trying to be mean and keep you in suspense. It's because I record my podcast in batches many weeks ahead of time and at the time of this recording, I don't have all the details in place. I'm not going to start announcing it here until the dates and everything are set for the training and I have all my ducks in a row, but I'm sure you don't want to miss out and I don't want you to miss out either. If you're on my mailing list, you will be notified of all the details the second that everything is available.

You may be thinking, "Okay, I don't know if I'm on the mailing list." Well, if you've ever signed up for something on my website like a PDF download or my

canning tool and resource guide, anything like that where you put in your email, then you're on my list. Or if you get my weekly newsletter, you are on my list. If you're not sure if you've ever done that or you just want to make extra sure that you are on my mailing list, well, I'll make it really easy for you. Even if you're listening in your phone right now, this is what you can do to make sure that you're on my list.

All you have to do is text the word homegrown, all one word, to the number 44222. You just take out your phone and who you're texting to, you just type in the number 44222 and the message that you send is the word homegrown. Now when you do that, you'll get an automated respond from me. I'm not really sitting on the other end of the phone just answering everybody, it's automated. And you'll get an automated response from me and it will tell you to input your email exactly, nothing else, just your email address. You type in your email address, you push send, and you will be on my list. Okay, so super, super simple. Just text homegrown to 44222 and you will not miss out on any of the announcements coming up for the trainings that I'm going to be doing.

Okay, so today's topic is all about the mason bee and actually, it's a little bigger than that. It's an episode where we cover several different bees, mostly solitary bees like the mason bee and talk about how immensely important they can be, not only to our food gardens but to growing food in general. Now if you're a listener, then I know that you care about where your food comes from. I know that you have an interest in organic food and sustainability and chances are you either grow some of your own food or you want to so you can not only enjoy the incredible flavors of homegrown produce and all that that provides but also have more control over your food.

Well, bees are super important. They are a very important piece to that food production puzzle. I've covered honeybees and backyard beekeeping on two episodes of the podcast. I think it was episode 59 and I forget the other one but I'll have them in the links in the show notes for today's episode. The focus of those episodes was on how you might want to become a backyard beekeeper yourself and the importance of honeybees. Now it's a fascinating topic and I'm going to be covering more on honeybees in different episodes going forward in the future.

Sometimes being a backyard beekeeper isn't always practical. Maybe you don't have a space where you can actually keep bees yourself or if you listened to those episodes, then you understand that being a backyard beekeeper is a big responsibility and it's not something that you want to dive in lightly. You want to make sure that you know what you're doing because you want to help the bees and give them proper management. That's why I wanted to cover mason bees on the podcast because mason bees are a nice alternative to honeybee keeping and you can raise mason bees pretty easily without any expensive equipment and when you help them, they help you grow more food and have a

more beautiful productive garden in the same amount of space.

The reason bees, any bees, are important is because bees are pollinators and a pollinator, any sort of pollinator, they are responsible for one third of the world's food supply. The way it works is that a bee uses pollen as food and as it goes from flower to flower, it collects pollen on its body and in the little hairs on its body and it moves around and when the pollen is exchanged from one flower to the next, that's what causes the flower to develop fruit or seed. Pollinators are key to food production. What does this mean for our own garden? Well, it means that if you have a supply of pollinators like bees, you get higher yields, more flowers are pollinated, more food is produced at the same time in the same amount of space.

Now, what's cool about mason bees is that they are so easy to introduce to your backyard and they are a super gentle bee. You've probably seen mason bee houses. They are really cute. They're in all the magazines. I have some in my backyard. They are super easy to create yourself. They're these little houses that you hang on a wall. They're like a birdhouse. They look like a birdhouse but one side is open and then you have tubes or little reeds sticking out and that's where the mason bees will lay their brood and the next batch will come from those reeds. I'll be sure to include in the show notes for today's episode some photos so that you can see what I'm talking about, but they can actually be really cute and look really darling sitting in your garden and they are helping the mason bees at the same time.

I think I'll let today's expert tell you all of the rest. I've asked one of the leading experts to come on and share the importance of mason bees, how they live, how the whole thing works, and what we can do to support them and bring them into our backyards. So I brought on Dave Hunter who is the founder and owner of the Crown Bees in Washington State. Now the mission of Crown Bees is to provide more food for the world using whole nesting gentle bees like the mason bee. Crown Bees, they supply the native bees to all over the United States, they sell products. But what I love about their website is that they also include incredible education on the site. In fact, if you have kids, absolutely go to this site and let them see some of the videos and some of the information that they have there because it's incredibly helpful, not just for us but for kids.

One of their key features is that obviously, they care about they sell but that they are about education and they have a monthly newsletter called BeeMail, and it's where they tell readers exactly what to do each and every month for raising whole nesting bees. That's why I'm going to have in the show notes a ton of information for you. If this turns you on to the idea, you will be able to get a wealth of information from Crown Bees. Now, you probably already know that honeybees are used a lot in commercial food production. Well, Dave Hunter founded the commercial mason bee industry in 2009 which operates as the Orchard Bee Association and he was president for the first three years. Mason

bees are used commercially just like honeybees. Dave is also on the advisory board to a multi-year USDA Integrated Crop Pollination Project. That's a mouthful. He also recently co-authored the book *The Mason Bee Revolution*. Obviously, Dave loves to talk about the future of bees and mason bees and I just knew he was the one to bring on the show to help educate all of you.

Now, toward the end of the interview with Dave, he talks about a citizen's science project and if you've never heard that term before, that's where the general public can help researchers better understand the particular animal or an insect. It's where we would collect the data in our own backyards and relay that back to the scientist and then they use that in their database to study whatever it is that is the subject. He's going to talk to us about a citizen science project that he has going for mason bees and other bees similar. It's actually a project to determine what bees are in the different areas. I'll let him tell us all about that. But as you listen, everything that he talks about, links to everything will be in the show notes for this episode. To get that, you just go to LivingHomegrown.com/94. So why don't we get started and let Dave Hunter of Crown Bees tell us everything we need to know about mason bees.

Hey, Dave. Thanks so much for joining me here today.

Dave: Oh, glad to be on, Theresa. This is going to be fun.

Theresa: Yeah. I'm just really thrilled that you could take the time out of your busy schedule to do this because it's such an important topic and you are so knowledgeable, and I know that the listeners will really want to help out the mason bee and bees in general and so I think we can give them a lot of information. Why don't we start with you telling everybody a little bit about what it is that you do.

Dave: I'm an owner of a small company in Washington. Crown Bees is the company and if you look at my past, working on through real estate director and then you move into an area where your hobby becomes your livelihood. I find patterns in chaos. I'm always asking why. Over the past, I would say eight years, you just take in a small company that was just selling mason bees into something that we're pretty confident we can help the world get more food by using the bees, the correct bees, around them and that's my little path. Right now, we're just enjoying life, getting bees out, this is the spring, and working with a lot of people across the country today and the world in the future.

Theresa: Well, I definitely think you're making a difference and what you do is educate people but you also supply the bees and bee houses and the whole thing, correct?

Dave: Correct, and we've got a lot of neat little things. Bees are important. We've got a spring bee and a summer bee and hopefully in this conversation, we'll

understand that there's a lot more bees than I have that are already around our gardeners. That's the fun thing.

Theresa: Yes, and that's what we're going to dive into. Why don't we start with the big picture? Can you explain to everybody the difference between a honeybee and a mason bee because I think most people don't understand the difference?

Dave: Oh, yeah. To the most of the world, all bees have honey, all bees sting. And as we're learning in the world, there's about 24,000 species of bees, seven of those are the honeybee. And you drop into the US and we have about 4,000 species in North America. None of those bees in North America create honey, none. It's like wow. As we're learning, out of all of these other bees that don't gather honey, they all live about six weeks and most of them nest in the ground so we're going to call those ground-nesting bees and then the rest nesting holes. About a thousand species of bees are all nesting in holes, small little bees, big bees. Some bees nest in pith like a raspberry cane. Most go into just available holes.

If you're talking about a simple mason bee, we're going to call a thousand species of bees that nest in holes and they all live about maybe five to six weeks. They come out at different times of the year, some are in the early spring. The blue orchard, the mason bees are very typical early spring. There are summer bees and early summer bees that all come out at different times, lives their portion where they're gathering pollen, laying their eggs, and mating and pollinating, and then they're dead for those eggs they laid this year are next year's bees.

One of the biggest differences people are always afraid, so there are no honeybees in the US that are native, but most people are always scared about bees because they sting. I just got this one other major point is that when you look at these hole-nesting bees, every female is a queen. She's doing all of the work. She's gathering the pollen and she's laying her egg, she's nesting in this little hole that she chooses as her own, but she can't do both. She can't do all this work and defend her hole. We're finding that these bees are gentle. You can hold them in your hand, you can walk through a cloud of them. They can sting. They are a bee but they're just so gentle that it's unfortunate their cousins give them a bad name, but there's a lot of bees that are just gentle, awesome pollinating bees.

Theresa: Is that also because they're not having to defend a hive like the way a honeybee does?

Dave: Yeah, I think so. If you look at a hive, you've got all these eggs, you've got all those honey that you've gathered and the queen. And so for a hive, I think both ... Everyone's trying to protect the queen, protect the eggs and that honey. Yeah, those sting. In fact, if you get stung by honeybee, they've got a barbed

stinger, disembowels them and releases this scent, its pheromone that everyone comes chasing after whoever is by that hive. Not so with the mason bee. It's a barbless stinger and you can get stung. My 25-year-old son, back when he was three grabbed a mason bee, put him in his hand gently and just squished it in his hand and he, "Ah, dad. I got stung." We couldn't find where he stung or she stung. There was no bump on his hand. It just, it was a surprise. I'm here, don't squish me. You can get stung. Don't do that, don't squish your finger.

Theresa: Yes. Now, one of the things about mason bees I think you mentioned is that they're a solitary bee.

Dave: Yes.

Theresa: People probably have seen a mason bee house and not really understood what it was or the difference. Could you explain how the mason bee lives because it's kind of a whole different lifestyle than a honeybee?

Dave: All right. The mason bee, they nest in holes about maybe be a pencil width down to like four millimeter, really small hole. These bees, as they come out, they've been nesting this hole so they, whatever time of the year they come out, they're going to emerge from a cocoon and crawl through that hole out to the world and typically went to finding their mates. They're going to find their male and mate. They're looking for holes right there in someone's backyard to nest in again. We've got holes that are small, medium, and large that are in a house that keeps those houses dry and you've got these in your backyard. We're typically having these little houses facing south. There's your whole apparatus. It's just a simple little with holes and the bees. Very, very low cost. They're very easy to maintain.

So beyond house and holes, what are the things that actually the bees are looking for in your backyard? House, holes, pollen. Most of the bees out there are generalists so dandelions, *Pieris japonica*, fruit trees, whatever time of season that bee is out, they're looking for those types of holes. Then a funny little thing as these bees are laying eggs in these holes, let's call it maybe a 30-minute trip around your yard gets enough pollen crammed into their abdomen. They've been belly-flopping on flowers, pollen's falling off everywhere. They get a big enough load and now down into the hole, they scrape it off. Funnily enough for these little trips gets about a pea-sized bit of pollen. She backs and lays an egg and then she seals that chamber with something. The spring mason bee, the blue orchard that we use finds clayey mud and stuff it. They tender so it trips back and forth, has enough mud there that that's where she lays.

She is sealing the holes up with that nesting materials available to them. The spring mason bee uses mud. There's bees out there that use down flowers that's like cotton. Bees use resin from nearby trees. The leafcutter will cut little

cute little circles, just a tiny little piece and carry that curled up leaf back to her hole and stuff that in. Other bees are using chewed up leaf bits so there's just a variety of chamber protection. To summarize what I just said, you need pollen, you need holes. That nesting substrate that helps him close that chamber is important. A clay-using bee doesn't exist in a sandy environment. A bee that uses cactus or aloe, you wouldn't find that out in the northwest. We're learning that that type of substrate is important.

Then probably the last one, trees, it's really important and I know your listeners probably are into this ilk. A little less chemicals goes a long way in a backyard. We've learned that there's lawn treatments that people around me ... I have people raising bees for me, and every year I give you a couple hundred mason bees. They get back four or five hundred every single year. This year, I got back six. What happened? They had their lawn treated and same exact thing happened at New York that year to another friend of mine. Same thing, they put down lawn treatment and all of these bees, he had thousands of mason bees nesting there. They all disappeared in one season. And so-

Theresa: Wow.

Dave: Yeah. We know that there's something in lawn treatment that smells. Honeybee or bumblebee where you're chained to the hive, you have to nest there to protect the queen. They've got to fly through that toxic stew and a mason bee are not really loyal. If it smells, I'm out of here. I'll go find another hole that is keeping me home. A safe yard with a little less chemicals.

Theresa: Very good, yes. Now, I think it's important for everybody to understand what efficient pollinators they are and you alluded to it when you were talking about how they belly-flop and when we had you on Growing a Greener World, I was so fascinated by how efficient a mason bee was because most of us only think of honeybees as being the big pollinator that everybody uses. Could you give the statistics or the background about how efficient a mason bee is compared to a honeybee?

Dave: It's a great story, yes. Well, let's actually understand the honeybee first. They've got a hive that has a thousand eggs laid a day. I'm going to say the honeybee is probably one of the most sophisticated, most awesome honey-making insects in the world. Those thousand eggs a day, they need a thousand little mounds of pollen gathered a day and the honeybee, as you have to get every pollen possible in a two-mile radius, they've learned communication signs and I know that that's my tree out there and I gather every grain of pollen and I keep it on my hind leg sticky. I get it wet with saliva and I'm to that tree, sticky pollen back to my hive and I'm brushing off every single piece of pollen that I can.

Now, your mason bee, little less sophisticated. That they're out there as they belly-flop into a flower, they're grinding their hairy abdomen all through there,

off to the next tree, belly-flop. As they're belly-flopping, that pollen is just falling off everywhere. We look forward to, as we're into an orchard, we know that about maybe a hive and a half or two hives or maybe 60,000 honeybees in an acre of cherries, for example, needs that many bees. We can put 400 females in that same acre and actually farmers gaining significantly more pollination from those 400.

Theresa: That is amazing, yeah.

Dave: We're seeing about a hundred to one maybe, hundred honeybees to one mason bee. It's probably bigger than that but on the safe side, we love to use that and farmers are slowly learning that we ... I'm going to say farmers and gardeners. We have gardeners all the time sending back pictures of boards propping up branches. "I've never had so many apples. I've never had so many branch. I've had to prune this thing." It's kind of fun. People just didn't know that there are these bees out there that can give you more food.

Theresa: Yes. If you are not wanting to do a honey hive, you can have mason bees and they will definitely help boost your production of your food garden and that I know what my listeners are interested in, so that's fantastic news. I have actually seen footage of the mason bee as it belly-flops and you aren't kidding, man, it's almost like they don't have good landing gear because they just land and poof, all the ... You can see all the-

Dave: All the, yeah.

Theresa: Yeah. It's amazing. I'll have to find a video. I'll have to link to that because it really is ... They are definitely flopping and you can just see the pollen fly off of them. They must be really having a good time when they go out there to do that.

Dave: Yeah. And the same thing we're saying the mason bee, the leafcutter bees we're seeing the exact same thing. They're a smaller bee and actually, when we're using the leafcutter bee, we started using them in Tennessee organic farms and we're now looking at more farms this summer. A couple of the farmers have been complaining about too much food. Well, you know. What?

Theresa: Oh, that's too bad.

Dave: One of the farmers who has an organic farm had acorn squash that you pick at one particular size. They couldn't pick fast enough so they've gotten now too much big squash in it and it actually was just rotting in the fields or some other farmer had beans and by the time they got back to the beginning of the row, the beans were dry. It's a fast enough beans. There are some food making bees out there really.

Theresa: Yes. Well, I guess that can definitely be a problem but it's probably a good problem to have is to have too much food. Now, you keep mentioning the leafcutter bee and I wanted to talk about that for a second because if you have never seen the damage ... I hate to use the word damage, but it's very minor what happens in the garden if you go out and see these little circles cut out of some of your plants. The first time I saw it, I'm looking under the leaves and I was trying to find the caterpillar and then I discovered that it was a leafcutter bee and that made me very excited. That's why it's so important for people not to just go run out and grab a spray because you want to have that leafcutter in the garden and they're doing very minimal damage. They're just plugging up the little holes as they're making their babies, right?

Dave: Exactly. In my yard, I might be having possible four or five hundred of these bees nest in my yard for the past three years. I have yet to find one of those holes you just described. I meant look, it's nowhere. You touched on a point there I do want to highlight. A lot of people still today believe that if there's leaf damage in your yard, then you've got to run for the spray. I actually had a story of hornets that were nesting back in one of my hills and I got one down my back and screamed like a little boy, you know, "Ah, ah."

So then I'm not going to do anything about it. It's in the hillside, I'm in their turf, and it wasn't ... A couple weeks later, I noticed that there were hornets patrolling my raised beds and underneath my, I noticed it in my house, underneath my grape arbor. I realized that those guys, their job is to snag the caterpillars and the little aphids or whatever they've got inside. Their job is to strip the prey from my yard. In the part of a balanced yard, you do need food for the predators. Ladybugs need aphids and aphids wasps means aphids and birds need caterpillars. And so if you have a yard devoid of holes because you're as fastidious outside, your yard is so fastidious, I just think that's not natural.

Theresa: Yes. No, it's all an ecosystem and it's all about balance.

Dave: Yes.

Theresa: That's a very good point, yes.

Dave: Yeah. Little holes in leaves, that's a good thing.

Theresa: Yeah.

Dave: To summarize, it's a good thing.

Theresa: Yes, yes. I definitely had to learn that when I first saw this like, "What is it?" But you learn and that's why it's important to talk about that. With the mason bee and the leafcutter bee, so in or I guess what I'm meaning to ask is in the category of solitary bee, there's also ... Isn't the bumblebee also considered a

solitary bee?

Dave: Actually, no. The bumblebee is a social bee. The queen lives over the winter so she survives in places in a mouse hole or under leaves or something like that. In the early spring, the queen comes out and finds her a new hole and then on her own starts her brood and finally is able to now sit home and keep on laying up to maybe 200 eggs and she's got a small pile of maybe 200 or so workers for her through this spring and summer. Then by the deep August, she's starting to get weak and lays four or five queen eggs for the following year and so she'll be dead by August, but she is a social bee. A little less stingier but I can hold a bumblebee in the early morning. You can walk up to a flower that she's just sitting on. You can cup your fingers around her and lift her off. My wife thinks I'm weird by doing that, to get the bee.

Theresa: Is a bumblebee as good of a pollinator as the mason bee?

Dave: It's a wonderful question. I'd say yes because they, and maybe even better sometimes. The bumblebee is able to vibrate their wings or their wing muscles and they have a vibration and so they can pull the pollen out of the blueberry significantly better than any other bee. They grabbed it on their side, vibrates their muscles. I think they're a wonderful pollinator except for the range is just so huge. It's an eight-mile range for a bumblebee and so to have them in your yard is a lucky thing to pollinate your yard but it's tough to plan on having bumblebees in your yard every year.

Theresa: Yes, now I can see why. Definitely. Well, so speaking of that, what is something that we can do as gardeners to support these incredible pollinators? What things do we need to have in our backyard to support them if they happen to come in to our backyard or do you recommend that we purchase mason bees and put them into our yard? I know you provide mason bees and they can go anywhere in the United States because it's a native bee that you work with, correct?

Dave: Correct, correct. It actually, as you say that we're very careful that the bees ... We have people raising bees for us across the country. We have a program called bee buyback so you're in New York and you raise the bees, we're giving free stuff and you're sending me cocoons in the mail out in the fall and so we now send those New York bees back to New Jersey in New York. We're very careful to keep the same species. This *Osmia lignaria* is the blue orchard. We're very careful to keep the diseases down and try to keep the bees that are acclimated to the northeast to out there. Whether you buy bees from me, we have both spring and summer bees that are acclimated.

The mason bees, we have, don't work in Florida. You said all states, all states but Florida. The leafcutter bees, they were put out there are actually found in all states and provinces. You could buy bees from us or and as we're working with

... My company works with the lead researchers of the nation and some really cool researchers out there that are talking with us trying to learn more about the bees. We, the scientists, know of a thousand species of whole nesting bees anywhere. They've seen them and observed them, identified them. We don't know what size hole they go in. We don't know when they come out. We don't know whether they use mud or resin or leaf bits. We don't know so many things.

And so our company is actually pivoting just a bit. Sure, we can supply you bees but we need the backyard gardeners of America, whether you're in New Mexico or Maine, putting out a variety of hole sizes that you're putting holes. So if you look on my website, there's the pollinator pack that just has the variety of holes, small, medium, and large. You put them out early on and let's see what goes in there. These holes are in a house and we've got a pheromone that attracts all the species of *Osmia* and there's maybe hundred *Osmia* species here. We've got some leafcutter tracks. We've got some of that but we're asking the gardener to really put out a variety of hole sizes that you can open up. We don't want drilled blocks of wood. We don't want bamboo. You can't open either one of those things up, nothing plasticky.

You can create your own. Wrap a paper around thin pencils or thick pencils or grab Japanese knotweed or teasel. You can create your own holes. We've got them on our website. Put holes out from as early as you can and see what flies in there. Oh, my gosh. There's just some really cool things. You'll find there are some wasps that will use it. In the tiny little holes, there's an aphid wasp. They strip the aphids off your roses and stuff them in the holes. How cool is that?

The first part is I'm putting out holes and the house just keeps those holes dry. We've got some houses. Go put them in a pot. It doesn't really matter. Putting these holes up about maybe head height and you're typically trying to catch morning sun. A morning sun wall, the house about maybe head height, and a bunch of holes. These holes are put in there kind of haphazardly, kind of, you know. You're putting sticks between them and rocks in there, just making it look very haphazard. We're giving you directions with our bees on what to do but if you're just doing it and build it and they'll come, just relax and see what shows up.

Do this in your yard. They might be surrounded by people spraying chemicals and so you may have no bees, but also go someplace that's more natural and do the same setup in a meadow or by a forest or just some place where it's natural. Allow yourself to see what's the difference and if something's missing from your yard, you can bring it in from a nearby place to replenish what used to be there.

Theresa: Very good. This is the Citizen Scientist Project that you've been talking about.

Dave: Very true, yes.

Theresa: Yes.

Dave: We call it connecting the native bee network.

Theresa: Ah, very good. Okay, so what people are doing is they are setting out empty tubes and then going to record or monitor to see what shows up there. The reason that you want it to be something that does open up, what you're talking about is you want to be able to, if it's let's say a paper tube, you want to be able to open up that paper tube and see what type of bee is in there. If it's a drilled hole in a piece of wood, you can't, you'd have to crush or kill the bee to get it out to see what it is.

Dave: Exactly. The cool thing about a hole-nesting bee to appreciate, I can give this hole to you, Theresa, and maybe I'm a county away but I can hand bees to you. The bees of the ground, the 70% on the ground, I can't take a shovel full of dirt and crush. Now, I've killed the cocoons in it. I can't move ground bees around. The fun of hole-nesting bees is actually we know science is teaching us that when you use native bees to pollinate, we talk about how well they pollinate, farmers are getting more yield. As the honeybee is having these challenges, it's not a food-producing bee, it's a honey-producing bee and we're just misusing this.

At some point in the future, all of these backyards, we've got enough people going and learn how to raise their bees of Toledo, Ohio and there's a lot of them there, we'll be able to move enough of those bees from backyards into nearby food-producing CSAs or into organic farms here or there. We'll probably stay away from conventional so this is a more of ... Because of the chemicals out there. We see this as the future of food and it's not only in the US. There's a study that was just finished a year ago with South America and Africa and a huge research team was looking for the variables that would give the poor farmers more food. Heights of their farm, size of their farm, do they use chemicals or not. The number one variable to get more food if they found these in the crop, they got a 25% more yield.

Then a professor up there, I was actually in this session, point this thing out to the audience and he said, "And I'm not talking about the honeybee. I'm talking about native bees." It's such a worldwide piece and those were unmanaged bees, Theresa. If we can get them managed, buying holes in Ecuador or in Kenya and get those bees to manage them, we'll just get more food. It's that simple.

Theresa: Because they're so efficient and it takes a lot less, so one mason bee can do, or any native bee, can do so much more than one honeybee that it's a lot easier to spread them out and to expand and manage them.

Dave: Nice explanation.

Theresa: Yeah. Perfect. Well, this is great. I want to make sure everyone understand so that they can do. When you're talking about let's say making tubes ourselves, can you explain because I've seen how you do this where you take a pencil and a piece of paper. Could you walk us through how someone could make little tubes that they could put into their backyard to try and encourage mason bees?

Dave: Yes. All right. We've got just standard computer paper. I'm going to maybe rip it in half and wrap it around the pencil at least four times around the pencil. Tape it and just close it off and then close off the end, so bend over the end and then tape that. That's the largest that go, five-sixteenth of an inch is a pencil. Then to look around your house and find a coat hanger. Even a thick, a coat hanger would supply a tiny little bee a hole. To do four wraps around something, a piece of tape is fine. Or I would shift into what's in my yard that has a hollow stem? What's in my yard that has a pithy stem? Raspberry, you've got raspberry canes now. For bees called a Ceratina and it's a bee that goes into soft pith and that's there all across the country. Do we have any? No, but they're there.

You and I, you're in California. I'm out here in Washington. We don't have many carpenter bees. I know the east coast just hates those pests but if you put out boards and we're thinking this thing through, put out boards under a house with some holes just started. Carpenter bee wants to nest in that hole and it might save their fence post or their porch and now you've got this bee that's nested in this board or you can relocate it to some nearby forest instead of killing an awesome pollinator.

Theresa: Fantastic. Yes, you can just relocate them.

Dave: Yup. We're just trying to think through pollination. It's not a pest. I get it, I get it. If it's in my porch, I'd be kind of mad but, you know. Here's an avenue to do that. Yeah, so bees nest in holes and they're there. We're just unaware that's the piece.

Theresa: What the purpose of this Citizen Scientist Project is to see what kind of information you can gather so you can get a better picture of the different types of bees because there's over a thousand and you don't really know which bees are in what area. When someone does this and they make their little tubes, they put it in their backyard at head level on a morning, catching morning sun, and they wait and see what happens. What should they do as they start seeing some bees nesting in there? How do they let you know?

Dave: First, was to high five, you know, nice job. As you and I are talking, my website is being enhanced to include this Native Bee Network session. We're working with scientists who can help us identify. The path would be holes around, bees are starting to use it, and let's wait a year and let's see who nests there and we'll help you harvest cocoons in the fall. We can talk about that in a second, but

you're able to identify these bees in the wintertime and then that will leave ... We'll work with a scientist to identify the bees and really as this program progresses, we know who you are. You're Mrs. Smith in Toledo, Ohio and you're every year just gaining more and more of these bees.

Actually, we're working with a bunch of people in Toledo. Through a few years, we'll be able to network and get these people of Toledo gather enough of that bee and then now working with that team to put them into some nearby crop. We've got scientists now working alongside the citizens. How fun will this be? We're just right now, our website is just starting. We're building the database. We're getting there but it'll be put the holes out, see who nests. If you're successful, let's get that bee identified and then we'll just work with you over the years to raise more of that bee.

Theresa: It's such a simple thing to do and yet it can have such a huge impact and that's why I think everyone will be really excited about doing it. That's fantastic. I know you have the pollinator pack on your website and you have more information which will link to in the show notes for this episode. You also have the little houses, so if someone wants to-

Dave: The holes.

Theresa: Yeah, and the holes. If someone wants to maybe they want to do this, see what they get, but also they just want to bring mason bees and enjoy that especially if you have kids. It's a great educational piece. I know I did that with my kids. We brought in mason bees and it was really fascinating to them to watch the whole process. How would they go about that? What's the time of year that you order your bees because you probably can't do it? Can you do it in the middle of the summer or no?

Dave: Yes.

Theresa: Oh, you can?

Dave: Yes.

Theresa: Okay.

Dave: Actually when you're ordering bees, you can do this in November. On our website, you're able to say, "Send my spring bees to me on April 4th," whatever. Okay, so we now got to fly the or mail them or, "I've got summer bees, so I want to have my summer bees to me in June." We've got actually the full season. We have from early spring all the way through August where you can order bees from us just that year and learn. It's the 101. It's so easy to do and here's how to do it. And you and I have been saying a lot, Theresa, online we've got a think called BeeMail. I know it's kind of a cheesy name.

Theresa: I think it's cute.

Dave: Oh, okay. All right. Once a month, I write what to do and it's just ... You don't have to remember it. Here's just a reminder. We've got, I don't know, 20 some thousand people following us around the world but it's April and for April, you do this. We're just giving clues and hints and, you know, it's that and in the fall, here's how you harvest cocoons. Here's why you harvest cocoons. Here's some videos. You don't want people to worry that it's too hard, you want to take the hardness on. It's just a simple bee and it's forgiving. But this month, do that and that's with BeeMail. You can sign up. It's right on the front of their website. You can, I think, sign up for BeeMail. It says the words right there.

Theresa: Yes. You do, you have so much information. It's a great resource and that's people should start is by signing up for your BeeMail and just learning everything that they need to know and then they can move in to either bringing bees in or doing the Citizen Science Project with you. Now, you were talking about you were going to explain how you do the harvesting of the bees. How does that work?

Dave: What we've learned is that nature always wins. That simple statement, the house has it in right now. In 50 years, we did that thing they would just collapse. When you look at the honeybee, we're comfortable there's so much going wrong with that honeybee. We're mismanaged and as my company's analyzed, there's the honeybee industry and the bumblebee industry. Oh, my gosh. The damage we're doing with the commercial bumblebee, the leafcutter industry years ago because they couldn't hold the cocoons in their hand, how they were raising these things. There was a fungus called chalkbrood which almost shut down the entire country. Now, the only place that's clean in all North America, no chalkbrood, is Saskatchewan. All right, well you learn and now you're looking at the mason bee. Here's another cool bee but all of a sudden we're realizing, we have too many good things in one place. Nature's going to win.

When we got all these holes in front of us and I've got, I don't know, two or three hundred cocoon, after a while, pests are going to move in. These drilled blocks of wood, you can't take away the pests and over a series of years, nature wins. Those drilled blocks of wood become mason bee cemeteries. There's the same thing with people. There's some bamboo used that are glued in, very cheap. Someone's just making money off this. You can't open bamboo and they just wind up being ... If a bee will use it at all. Same thing. We're asking people to have holes, reeds can be snapped open, paper tubes can be unwound, we've got wood trays that really easy to use.

In the fall, we'll teach you how to ... It's actually, it's a fun thing. Glass of wine, good music, grandkids over or whatever, and you're harvesting cocoons and there's some test in there. We'll show you what to separate and it maybe takes

you half an hour. To raise mason bees is total of maybe 45 minutes a year.

Theresa: Yeah, it's easy. Super, super easy.

Dave: Oh, oh, gosh, yes. Okay, it really, really is. You've harvested and we're actually advocating that you put your bees, I know this is silly, put in your bees in a refrigerator. Huh? We've got a thing that doesn't dehydrate the bees and people all over the country are keeping their little cocoons very safe in this thing we call the HumidiBee and it's just a little container in the fridge. The reason we do that is that with our weather being as strange as it is, early springs, late springs, bees kept in a fridge are, all right, they're surviving on their stored fats. That's how they survive. They've got to come out by May, typically the spring bees do. With the bees in the refrigerator, their metabolism is really low and you're able to let the bees out when you want to. If someone has a cherry tree or plum tree, they're able to put the bees out in March or April or if they want to wait all the way till end of April for their apple trees, they're able to put the bees out then for their apple trees.

Theresa: Fantastic. That's really good.

Dave: Yeah, you're in charge of your pollination. Oh my gosh, you can do this.

Theresa: Yeah, yeah. That's fascinating. I didn't even realize that part. Then the bees actually live like what, six weeks?

Dave: Yup. People say, "Oh, my gosh. How short?" They don't realize that honeybees, a thousand eggs are laid a day, a thousand bees die a day. The honeybee lives six weeks, four to six weeks and the queen is going to live longer. But you find with these solitary bees, the whole species is going to come out at about the same time, same month, same everything. Then they're all dead four to six weeks later. There's a potpourri of bees emerging from early spring and they're dead in six weeks or in late summer and dead in six weeks. There's a lot of bees out there but they, yeah, six weeks.

Theresa: Got it. Is the way they do this for commercial pollination is that maybe one species like the way you are calling one a spring bee and another is a summer bee. You can get perpetual pollination but the trick is that you're really changing the different type of bee as you're going to the different seasons.

Dave: That's exactly right. What we're trying to also help people realize is that while you might've bought these from my company this year, we don't ever want you to buy anymore bees from. We want you successful, we want enough eggs laid that instead of having you bought maybe 20 from us, next years you got 30 or 40. After a while, this happens. After a while, you have four or five hundred and now you're giving cocoons to your friends and family and neighbors. Then we've learned just like friendship bread, also people-

Theresa: Or zucchini, it's like zucchini.

Dave: Yes zucchini, there's no more friends.

Theresa: Yeah.

Dave: We'll take them back from other people. Yeah, it happens all over the place. It's such an unusual industry where we're helping people.

Theresa: Yeah, that's funny. Yeah.

Dave: Here's the last one piece. What you don't appreciate? Okay, a handful. I know we're just talking here, but I've got my hands cupped and in my hands, cupped hands, maybe 250 cocoons and those cocoons in a cherry field produce about two to three tons of cherries. We put those 250 cocoons into an acre of apples and I've, I mean tons of apples would come out in the orchard. Two hundred and fifty bees does an entire acre of apples. When your backyard has a couple hundred cocoons, you don't realize how much food that can produce in a conventional or an organic orchard or a field and that's the key of the backyard. I've got so much pollen I can raise these bees so well so that when I put into a food-producing place, I'm able to then the byproduct, I'm able to get peppers or whatever is produced around me in the stores because of the bees I supplied the farmer with a tiny sample.

Theresa: Yes, yes. That's absolutely amazing. If no one's ever seen one of these cocoons, you do have pictures on your website. You actually have a little video on your website that they can watch and we'll be sure to link to that so they can see. When you're harvesting the bees, you're not going to get stung or anything. It's all the cocoons that you're harvesting and that's what you store in your refrigerator until you're ready to need them for whatever food or vegetables you have in your yard that you want pollinated and you just release them at the right time so that they will go out and do the pollination. That's so fantastic.

Dave: Exactly. That's the simplicity of a backyard and the harder part is thinking through Nicaragua. You know?

Theresa: Yeah, right. Yeah.

Dave: We can get there. We can get there. It's just to find that bee and then work with ... To develop a commodity. It's starts in the backyard. That's the easiest one and we all can get more food trees. That's just like, "Ah."

Theresa: Yes, yes. Like you said, now your whole shift has changed to feed the world and I can definitely see how that's possible. This is fantastic.

Dave: We're also trying to get ... Just like you've learned. You look at our website and learned, we've got PowerPoint slides that once you download, it's under our talk and teach part. We're looking for advocates just to teach their local elementary school or at a library to spread the word about these gentle bees. Here's all the slides so to get more people to learn and teach others, it's so easy. Try it yourself and then teach. Word of mouth goes a long ways.

Theresa: Yes, absolutely. Well, Dave, thank you so much for coming on the show today. This has just been a wealth of information and I know everyone's going to be really fascinated by it and they're going to be wanting to check out your website and learn all the rest, so I really appreciate you coming on the show and sharing all of this.

Dave: Yeah, thanks for having me. This is awesome, Theresa. You're a great host. This is fun.

Theresa: Oh, good. Thanks.

Wasn't that a fascinating interview? I just knew you guys would love it. There's so much more information that I'll have in the show notes for today's episode at LivingHomegrown.com/94. I also wanted to make sure you knew that the Native Bee Network that Dave was talking about, he's adding that information to his website right now as we did the interview. Just in case trying to find that, I will have links in the show notes. Always keep that the most updated so that I can link you directly to that as soon as it's available on his website. You certainly would want to go to his website and sign up for his newsletter, get more information there because then, you'll be in the loop. You'll know what's going on.

Also, I wanted to make sure you understood what Dave was saying at the end about the difference between drilled blocks of wood versus paper tubes. When you see a lot of the beautiful mason bee houses, they are many times just blocks of woods that are drilled out and they can look really cute and charming. I actually have had one in my backyard for a long time. What I learned from Dave and what he was mentioning there at the end is that when we use that type of a mason bee house, it's not cleaned out every year like it would be with a paper tube or reed and diseases and insects and different bug problems that can hurt the mason bees will start to collect there. Like he said, nature happens.

The best way to help the mason bee is to have a house where the reeds or the tubes you take out and replace so that they're always clean and fresh and you don't start to have the insect and disease problems. That's what he was talking about. I just wanted to make sure you understood that part. He has more information on his website. Just go to the links for today, the show notes for today and I will have links for everything that Dave talked about and I just hope you found this really as fascinating as I did. I've known Dave for many years and



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he always brings so much insight to the topic. I thought you would enjoy that. Until next time, just try to live a little more local, seasonal, and homegrown. Take care everybody.

Announcer: That's all for this episode of the Living Homegrown podcast. Visit LivingHomegrown.com to download Theresa's free canning resource guide and find more tips on how to live farm fresh without the farm. Be sure to join Theresa Loe next time on the Living Homegrown podcast.

[BLOOPER]