

Transcript: Faith Van De Putte & David Bill of Midnight's Farm – Safe On-Farm Composting

Nicole Witham ([00:00:07](#)):

(Music) Hey everyone. What's up? Welcome back to the Farm Walks Podcast brought to you by Tilth Alliance and Washington State University Food Systems Program. I'm your host, Nicole Witham, AKA Farmer Nicole.

Nicole Witham ([00:00:20](#)):

We are working our way through Season Two of the Farm Walks Podcast with new episodes dropping every other Monday. This season we're bringing together a great crew of organic, sustainable and innovative farmers and some fantastic food systems' resource providers as well. And if you want to learn more about the Farm Walks program in general, head on over to our website at farmwalks.org to stay in the know. Check out Season One, if you haven't already, and fill out an evaluation for the episodes you've listened to. Heads up, there is a giveaway. Make sure to get those evals in.

Nicole Witham ([00:00:57](#)):

In this episode of the Farm Walks Podcast, I'm talking with Faith and David of Midnight's Farm out on Lopez Island in the San Juans. We are getting the dirt on their Department of Ecology farm exempt aerated static pile compost facility and we'll hear tidbits about their recent biochar research project as well as tools for how to run a safe on-farm compost system.

Nicole Witham ([00:01:22](#)):

Later in the episode, we check in with Nate Stacey, soil scientist extraordinaire, and the Farm Program Director at Tilth Alliance. We'll delve into all the compost details you should be thinking about.

Faith Van De Putte ([00:01:39](#)):

Hi. We're Midnight's Farm up on Lopez Island up in the San Juan Islands, and we do compost, beef, pork, some mixed veg, have a farm stay, and you can find more information about us at midnightsfarm.com. Or if you're into Instagram, we're on there, @MidnightsFarm, and it's Midnight's Farm with a little S in the middle, Midnight's Farm. And one thing we have coming up this fall that we're excited about is we're going to be hosting a Climate Farm School the last two weeks of September.

Nicole Witham ([00:02:12](#)):

So welcome you guys to the Farm Walks Podcast. Thank you so much for being here with us. We're really excited to have you. We have Faith and David. You guys want to introduce yourselves and tell us a little bit more about your farm and et cetera?

David Bill ([00:02:28](#)):

Hey, I'm David Bill, and I'm super excited to be here. Take it from here, Faith.

Faith Van De Putte ([00:02:35](#)):

Hi, I'm Faith Van De Putte and run Midnight's Farm with David here on Lopez Island, Washington, up in the San Juan Islands.

Nicole Witham ([00:02:44](#)):

Yeah. Give us a general overview of where you're located and how many acres you farm, what you're growing, so on and so forth.

Faith Van De Putte ([00:02:53](#)):

So we're smack dab in the middle of Lopez Island and we've got 100 acres total, but it's only about 80 of it is pasture. And in the pasture, there are some wetlands that we graze in the summer and there's also compost operation in our house and barn and all of that on the 80 acres.

Nicole Witham ([00:03:16](#)):

Beautiful, beautiful. Do you want to share a little bit more about your backstory, how you kind of arrived on Lopez or started farming and...

David Bill ([00:03:26](#)):

I grew up in Seattle, but my family had property on Lopez, and my mom started getting sheep. And so early on we would actually bring the sheep back to our Seattle house.

Nicole Witham ([00:03:45](#)):

What? That's great.

David Bill ([00:03:48](#)):

So we actually had ewes in our backyard for a while. And then there was a time when we would have... and we actually lived right across in the University of Washington President's house. And we had kind of a hedgerow, so there would be the sound of ewes, like--

Faith Van De Putte ([00:04:03](#)):

Baa.

David Bill ([00:04:03](#)):

... baaing. Yeah. Right there, for the parties. And that was sort of fun. And then we would have bummer lambs in the kitchen, growing up. So that was sort of a fun little element. That didn't go on that long, but there was some years with the--

Nicole Witham ([00:04:19](#)):

Yeah. So that drew you in?

David Bill ([00:04:21](#)):

... [crosstalk 00:04:21]. That drew me in.

Nicole Witham ([00:04:22](#)):

That drew in.

David Bill ([00:04:22](#)):

It drew me in. Like, "No, we don't have sheep--"

Nicole Witham ([00:04:24](#)):

You were there.

David Bill ([00:04:24](#)):

"... on our farm, so no more sheep." I was like, my mom spent way too much time worrying about the sheep.

Nicole Witham ([00:04:30](#)):

Yeah.

David Bill ([00:04:31](#)):

So I had a tractor as a kid. We plowed up some ground and did some of that farming in high school and went off fishing in Alaska. That was an element of making some money, and it was a career that I did for quite a while and loved it. It took me away from family, Lopez. I came back. I've had this place here for 3+ years.

Nicole Witham ([00:05:03](#)):

Wow.

David Bill ([00:05:03](#)):

And farmed it more recently than I did when I initially had it.

Nicole Witham ([00:05:10](#)):

Sure, sure. And Faith, do you have anything to share just about your journey into farming?

Faith Van De Putte ([00:05:16](#)):

Yeah, so I grew up on the island, so I came from... My parents didn't farm, but my grandparents and great grandparents farmed on the island. But I never thought I would be a farmer. I went off and was a massage therapist and lived in the city, had my city years. But then when I realized, I was like, "Oh my God, I'm still in the city." I never thought of myself as a city person. "I better get out of here." Then took me a while to realize I could return to Lopez, which I did, which was a great decision in my life.

Faith Van De Putte ([00:05:46](#)):

And so I'd always had an interest in good food. And I think I bought my first CSA share in 1992 and volunteered on the farm when I was in college. And so it was just part of my life over the years. And so my interest in food and connection with nature and the land really drew me into just a deeper interest in local agriculture.

Faith Van De Putte ([00:06:20](#)):

And when I moved back and then I met David, and so my garden that I've always had has just gotten much bigger.

Nicole Witham ([00:06:29](#)):

Mm-hmm (affirmative).

Faith Van De Putte ([00:06:32](#)):

And it's been a, since David and I met, just a love and an adventure that we have embarked on together.

Nicole Witham ([00:06:41](#)):

Yeah. You mentioned on-farm composting and cattle and crops, which you have kind of the full circle going on there, but you're also really interested in education and research. Do you want to tell us a little more about a recent project that you've been working on?

Faith Van De Putte ([00:07:01](#)):

Yeah. Over the years we have gone to Tilth Conferences, and we've always been really inspired by Doug Collins' work with soil. And so a couple of years ago we contacted him, and we're like, "Doug, let's do a project together. We would love to do some research on the farm." And we worked with him and we would also have a really strong interest in biochar.

Faith Van De Putte ([00:07:33](#)):

So we put together a research project and applied for a SARE grant, and got it. And so not last winter, but the winter before, we did the research on the farm where we were looking at adding biochar to the cattle bedding, composting that. And so looking at the co-composting, looking at two different kinds of biochar and how it held onto the nutrients from the cattle bedding, from the manure and...

Nicole Witham ([00:08:07](#)):

Super cool. Love it. And now, David, what was it that drew you to this kind of on-farm research?

David Bill ([00:08:17](#)):

Well, I have a sort of sciencey background. I have an engineering degree. And the exploration of that part is really the funnest part for me. It's like there is some fun in being in a loader and moving compost around, but actually after a while, that's like, "Okay, where's my podcast? What am I learning?" So it is really fun to be associated with some smart researchers. So having Doug around and Deirdre over at WSU in Mount Vernon has been here, and we're trying to entice her into some clay research. So it really makes what we do a lot more interesting.

David Bill ([00:09:08](#)):

And we're keenly sort of focused on climate. That is the main reason we did the composting operation. Sometimes ironic is like, well, how... We use a lot of machinery. We burn a lot of diesel doing it, moving around. And so the irony is always challenging. And sometimes we have these big piles of wood chips and we worry about like, "Oh, what are the off-gassing of those?" Anyway, so it's obviously a challenge, but trying to do that in the best way possible, and it's part of our real excitement.

David Bill ([00:09:41](#)):

And on the education component, we do have interns, and we've recently segued into enrolling them and paying for a three month online course called Terra.do, which is all about climate, this deep immersion into climate and all aspects of it. So we're hoping that we attract people that are interested

in climate and doing something about it because Terra.do, da-do, and it's all about doing something about it, and not just studying it.

Nicole Witham ([00:10:15](#)):

Yes.

David Bill ([00:10:15](#)):

So it's pretty fun to have this. We have three of them, and we're part of the L&I intern program.

Nicole Witham ([00:10:27](#)):

Yes, yes.

David Bill ([00:10:29](#)):

It is the focus of ours, trying to do that, and it's been pretty fun.

Nicole Witham ([00:10:33](#)):

So sequestering carbon, and training new farmers. I love it. It's fantastic. So I'd love to get a little deeper into kind of your composting operation and how you kind of started with it, what techniques you use. You mentioned your aerated static pile.

David Bill ([00:10:54](#)):

Yeah. The start of it was really... I mean, I think almost all farmers compost to some extent.

Nicole Witham ([00:11:03](#)):

I would hope so.

David Bill ([00:11:04](#)):

I would hope so. Yeah, what the heck are you doing if you're not doing some composting?

Nicole Witham ([00:11:08](#)):

If you want to call yourself a farmer-

David Bill ([00:11:10](#)):

Yeah. You're probably doing some composting of some... And so I've done that. I had a big truck that I carried my net around, so it could hold 15, 20 yards. I would take it to the mainland and get chicken manure. And a funny story about that. Coming back on the ferry with a load, 20 yards of chicken manure--

Nicole Witham ([00:11:30](#)):

You're stinky.

David Bill ([00:11:30](#)):

... they one time gave me my own ferry. They would never do that again. I got my own ferry all by myself from Anacortes to Lopez.

Nicole Witham ([00:11:38](#)):

Yes.

David Bill ([00:11:39](#)):

Now you can't. They just cancel ferry after ferry because they don't have enough crew to run their main ferry. But anyway.

Nicole Witham ([00:11:46](#)):

Yes. Everyone, I just want to say, this is the side story of being a farm in an insular area, like on an island, and just what that means too, right. So we don't need to go down that. Yeah.

David Bill ([00:12:01](#)):

So it's not that easy.

Nicole Witham ([00:12:01](#)):

You live and die by the ferry schedule.

David Bill ([00:12:02](#)):

Yeah, well we could, but it's just not... We are bounded by the ferries, and it's super challenging. Particularly it's gotten way more challenging now to get on and off the island. It's just a pain.

David Bill ([00:12:14](#)):

So anyway, so now the more we can make this kind of a circular economy where we take materials from the community and turn it right back around and send it back out to the community is pretty sweet to feel like we're part of that.

David Bill ([00:12:31](#)):

But the how do we get involved? So we've had heavy use area for our cattle, and we've composted that. And then at some point it was partly an inspiration of getting together with Faith. I don't know. When we got together, you could maybe tell that story, but decided to go much more intensely into the... had a lot of support with that.

David Bill ([00:12:55](#)):

And I took the Washington Organic Recycling Council's course on composting and we hired Tami Thomas from Mount Vernon to get us an Ecology permit. And we hired Green Mountain Technologies around some technology around the aerated static piles. And anyway, we ended up doing, taking it to the level that is sort of on par with the kind of commercial composting.

Faith Van De Putte ([00:13:29](#)):

The other big inspiration was on the island, as far as how people got rid of their yard waste and wood waste was burning it. The culture on the island was to burn all this biomass.

Faith Van De Putte ([00:13:45](#)):

And so early on David had this love of compost, but then there's all... and this concern about climate change. And so seeing all this biomass just going up in smoke was another big inspiration for doing the scale of composting operation that we did or that we do so that we were able to have community drop off. And in the beginning, that was a big part of our mission was to do community education around, "You don't have to burn this. Bring it to us and we'll keep this biomass in the fertility cycle of the island." And so that was one of the big inspirations as well.

Nicole Witham ([00:14:32](#)):

You mentioned a few of the trainings and kind of certification processes that you went through, which I think just goes to show like you got to do your legwork and your due diligence and the research to really, if you're going to take it to the next level and create a product that you're now selling also, right? and...

David Bill ([00:14:53](#)):

And technically, to sell compost in Washington State, you're supposed to be an Ecology approved compost facility.

Nicole Witham ([00:15:04](#)):

Yes.

David Bill ([00:15:05](#)):

And also oddly, yard debris is technically a solid waste, and that needs to go to a solid waste facility, not just anywhere. I mean, as if we all care exactly about the letter of the law. But anyway, so that's the regs.

David Bill ([00:15:24](#)):

And so we are what's called an exempt solid waste facility. So we can legally accept this yard debris and we have an Ecology approved composting facility so that the compost... we could sell it at the stores and whatever.

Nicole Witham ([00:15:39](#)):

Yeah. So it's about what you take in and how you process it and then how you can sell it. Do you want to say a little bit more about what folks can drop off now with you guys?

David Bill ([00:15:51](#)):

Yeah. I mean, we take what we call yard debris and we put it on the compost side, and we take wood waste and put it on a different side and to handle them differently. All the yard debris will all go through our compost facility. And the wood waste, we try to keep it really clean so it doesn't have any seeds or grass or anything that... or any... obviously doesn't get into... we wouldn't allow pathogens in it.

David Bill ([00:16:21](#)):

We actually make 1000 plus, maybe 1500 yards of ground wood chips a year, and they do not all go... a couple of 100 of those, 150 of those go into bedding. And a lot of the rest of it goes out into the community as hog fuel or--

Nicole Witham ([00:16:38](#)):

Sure.

David Bill ([00:16:39](#)):

... mulch and product. So anyway, that's on the wood waste side, it goes out like that.

David Bill ([00:16:47](#)):

We could dive deeper into the what we accept. As an Ecology exempt agricultural composting facility, they're very specific about what you can and can't compost, and that... it probably relates to food safety. We cannot accept food waste. The island and the solid waste facility here would love it if we do food waste. We are more ambivalent about it. Our experience has been food waste has been full of garbage. No matter how stellar the people that said they were going to drop it off and careful they were going to be, the amount of plastic in it is just crazy. So we can't accept it by Ecology standards and we are fine about leaving it that way.

David Bill ([00:17:42](#)):

We miss out on the high nitrogen and kind of the huge ecological benefit and climate benefit of composting food waste. So that's a loss, but it makes our life a little simpler.

Faith Van De Putte ([00:17:56](#)):

Yeah. When people come in, there's two different streams that... of waste, of biomass that we collect. There's wood waste. That goes on one side, gets ground up for wood chips that we use for cattle bedding and we sell. The other stream of biomass that comes in with community drop off is yard waste. And that is anything from the garden, leafy material, prunings, clippings, anything with seeds, and that all gets ground up and composted. That gets composted, and we use it on the farm and we sell it.

Faith Van De Putte ([00:18:41](#)):

So at different times, and also on the compost side, we also, our cattle are tied into the system. They over-winter up there right in the same area. Sometimes in the winter, we will put the ground-up yard waste. We'll use that as bedding. We also sometimes use the wood chips as bedding. Then all that material gets stripped off. That goes as a feedstock for the compost. So that all gets composted.

Faith Van De Putte ([00:19:12](#)):

We also will take when we have a slaughter, all the offal goes into that. So that's another feedstock. And then we also, if there's other farmers on the islands do... sometimes when they do a slaughter, they'll bring us their offal. Or if they have mortalities, they'll bring us their offal. So we have agricultural waste and then also the community drop-off yard waste are feedstocks for the compost.

Nicole Witham ([00:19:42](#)):

You mentioned before that, for instance, you were doing a research project and you were interested in biochar. I would imagine that managing a compost facility like this, you also have to manage the runoff from those different feed sources and as you're having your compost piles cooking. So do you want to talk a little bit about how you minimize runoff from that waste or how you kind of can even just go through the construction of your piles?

Faith Van De Putte ([00:20:13](#)):

I think it starts [crosstalk 00:20:14].

Nicole Witham ([00:20:15](#)):

You want to share all your secrets with us, all your composting magical secrets with us?

Faith Van De Putte ([00:20:23](#)):

So David has an engineering mind, right?

Nicole Witham ([00:20:27](#)):

Yes, yes.

Faith Van De Putte ([00:20:28](#)):

And he loves to build things. Tell them David, how the whole thing is designed as far as thinking about water and runoff.

David Bill ([00:20:40](#)):

Well, the cattle, and I think Faith did a pretty good job of describing how this is really closely integrated with the heavy use area for the cattle. The compost piles are 50 feet from where we have the cattle in the winter. So it's all really close. So the first part is capturing their runoff, and that's partly done by repeated replacement of... Well, every day we go through there twice a day and kind of muck. It's super time consuming and very uneconomical, but we just do it. It means that we're with our cattle a lot in the winter, but we make these piles and then we move those into the compost so that is concentrated.

David Bill ([00:21:24](#)):

And then we have the new bedding every month. So we strip some of their bedding off, start composting it. So there's less runoff from the cattle than there would be if we weren't having this heavy bedding facility.

Nicole Witham ([00:21:40](#)):

And this is a--

Faith Van De Putte ([00:21:41](#)):

Yeah.

Nicole Witham ([00:21:41](#)):

... covered area as well?

Faith Van De Putte ([00:21:43](#)):

Partially.

Nicole Witham ([00:21:44](#)):

Partially covered.

David Bill ([00:21:44](#)):

They have covered zones. They have places so they can get in undercover.

Faith Van De Putte ([00:21:49](#)):

Yeah.

David Bill ([00:21:50](#)):

But some of it's not covered.

Faith Van De Putte ([00:21:50](#)):

And then the second piece with that that's under the cattle, and then there's a big concrete pad that the compost piles are on. And that whole, and then part of where we do the curing for the compost and then part of the cattle zone, all of that concrete pad is engineered to go... the water flows down into a settling pond. And so it goes into the settling pond and then from the settling pond to a tank. And then if there's overflow, then it goes to a sand filter before it goes out from there.

Faith Van De Putte ([00:22:28](#)):

We also recycle that water. So from the tank and the settling pond, we have a pump that, as you know, compost water is an important, one of the key ingredients to compost and it has to be wet enough. We use that water to wet the compost so it's often being recycled back into the system and so it never has a chance to go kind of out of the whole--

Nicole Witham ([00:22:57](#)):

Yeah, the system.

Faith Van De Putte ([00:22:58](#)):

... kind of cattle compost system.

Nicole Witham ([00:23:00](#)):

Cool.

David Bill ([00:23:02](#)):

Yeah. So for most of the time of year, we can over wet our compost, and it will all just go into this sump that we can drive a loader into and clean out the drains. And from there it will go into another tank. I mean, we don't want to let that escape. We're farmers, right? We are really looking for nutrients and we don't want to lose it into... I mean, we're highly incentivized not to lose it to groundwater or to surface water anyway.

David Bill ([00:23:33](#)):

And so for most of the year, we can over wet it. It goes on to concrete pad. It goes into these settling areas, and we'll just repump it. And it might smell a little bit because it's--

Nicole Witham ([00:23:46](#)):

Just a little bit. Just a little bit.

David Bill ([00:23:49](#)):

Anyway, we'll just put it right onto there, and it'll be fine.

Nicole Witham ([00:23:53](#)):

And is there anything else you do to the piles? Do they get covered at any point of the year or...?

David Bill ([00:23:59](#)):

Yeah. During the winter, we are definitely covering our piles. We have kind of a fancy roller furling device that we... We had some sailors. They sailed all around the world and they were here [inaudible 00:24:21]. And so they helped us construct this kind of [crosstalk 00:24:26]--

Nicole Witham ([00:24:26](#)):

Sail rigging thing.

David Bill ([00:24:27](#)):

... tarping, sailing.

Nicole Witham ([00:24:29](#)):

Very cool.

David Bill ([00:24:30](#)):

Just a roller furling jib, and we could roll it out and then roll it back up. We're kind of happy. And we made a big difference because you really want to roll. You want have it covered, but when it's super windy, we might roll it up and just like, "Okay, we're not [crosstalk 00:24:45]."

Nicole Witham ([00:24:45](#)):

Yeah, yeah. Those maritime skills come in handy.

David Bill ([00:24:50](#)):

Yeah. Anyway, and fun to have these people come and help us out with that. Yeah. So winter we're going to cover it, but this time of year, we're just adding a lot of water. And we pump water from a pond to storage tank and then we'll put a lot of water on all this.

David Bill ([00:25:08](#)):

We've got several locations that are all aerated, they've all got under floor aeration to them, and we start them in what we call Bin Zero. We actually just got some money from Tilth to help expand it a little bit. So we can turn it there where we put it first and it gets a lot of air and we can do multiple turns there. We're part of the Ecology requirements is meeting PFRP, primary process to reduce pathogens. And so it's getting it up to 131 degrees and for three days for a aerated static pile.

David Bill ([00:25:55](#)):

And so we try to meet that in multiple locations for a batch. It will start in one spot and move through these four different locations until we screen it and sell [00:26:07]. We've got a bunch of temperature

gauges and we're monitoring those temperatures to make sure they get up to that temperature, but don't exceed it too much.

Nicole Witham ([00:26:18](#)):

Yeah. And so you mentioned before that this is all kind of happening on a big concrete pad and being piled. And is there any other kind of buffer zones, or are there any other kind of requirements in terms of other agricultural activities that you can have near these piles or anything like that, just in terms of how the space is designed or how it's associated to other aspects of your farm?

David Bill ([00:26:46](#)):

I mean like Faith said, I think she described it pretty carefully. The runoff from the cattle area and the compost area all goes through the settling area first. Then it goes into a tank where it settles again, and then it goes through a sand filter. And from there it goes out onto this field in the winter. And really there's not much of the year that that happens.

David Bill ([00:27:08](#)):

And ideally we would... we might have a settling... another pond where we'd collect it all, but that's just another expense. And some commercial facilities would be required to have that. We weren't or haven't been.

Nicole Witham ([00:27:24](#)):

Sure.

David Bill ([00:27:24](#)):

That would be a step. One more step was to collect that, partly again, because it's got nutrients. But anyway, in our case, it goes out into a field. It's a cattle field and I think it's relatively benign.

Faith Van De Putte ([00:27:40](#)):

All the vegetable production is in a whole other section of the farm.

Faith Van De Putte ([00:27:45](#)):

And I guess the other piece, in the summer season when the cattle are all out on pasture, then we often have pigs up there kind of in the zone that we have the cattle in in the winter. So right now there's pigs up there. And if it ever gets stinky with pigs, sprinkling biochar really helps. Kind of amazing.

Nicole Witham ([00:28:11](#)):

Yeah. So that's something we may have skipped over a little bit. Do you want to mention how you're utilizing biochar in your bedding--

Faith Van De Putte ([00:28:17](#)):

We just--

Nicole Witham ([00:28:18](#)):

... or in your composting?

Faith Van De Putte ([00:28:21](#)):

When we did the experiment, it was very scientific and we actually took the bedding off and mixed it with biochar and actually stock tanks. And then we took that and composted it. So it was a little out of the field because we couldn't figure out how to do scientifically valid-

Nicole Witham ([00:28:42](#)):

Data. Yeah. You have to have-

Faith Van De Putte ([00:28:43](#)):

... valid like-

Nicole Witham ([00:28:43](#)):

... You have to be able to measure all the inputs. Yeah.

Faith Van De Putte ([00:28:47](#)):

Yeah. Because when we use it under the bedding, we will just hand sprinkle it, just broadcast it-

Nicole Witham ([00:28:56](#)):

Broadcast it.

Faith Van De Putte ([00:28:56](#)):

... and then put the wood chips on top of that. And it was going to be hard to get the right ratio up to Doug standards...

Nicole Witham ([00:29:07](#)):

Sure.

Faith Van De Putte ([00:29:08](#)):

...doing it that way. But one thing that we did that we're still waiting on the results from that, I'm so super excited about is we had these little mesh bags. And inside the little mesh bags, we put wood chips in the different kinds of biochar and we buried them underneath the cattle in the bedding for a month and then pulled them up and then taking those samples of those different materials. And they're getting analyzed to see basically what they absorbed from the manure and urine from the animals. That's the thing, I'm super excited to get that information, to see science. Yes.

Nicole Witham ([00:29:51](#)):

Science. Fantastic. For just some of our listeners, what are some of the benefits? You don't have to go into the scientific nutrient benefits. That hasn't been proven yet. We're waiting on results, everyone is, okay. But what are some of the other cool benefits that you get from utilizing biochar in your bedding this way? You were mentioning the smell for one.

Faith Van De Putte ([00:30:17](#)):

Yeah. There's definitely odor reduction and there's... Well, and it's interesting. It can change in some ways, I think just because of the porosity, the way it composts. There were definitely some differences

between the control that had no biochar and then the two batches that did have biochar in just how they heated up. And again, we don't have all the results back, so.

Nicole Witham ([00:30:47](#)):

Sure.

Faith Van De Putte ([00:30:48](#)):

You'll have to...

Nicole Witham ([00:30:51](#)):

So it's absorbing ammonia.

Faith Van De Putte ([00:30:53](#)):

[crosstalk 00:30:53] retaining nutrients because it's got so much surface area, and it holds on to nutrients. So that's one of its benefits, and that's why we think about using it in our bedding is to just, again, like David was saying, we want to hold onto as many nutrients as we can and not... It's another kind of tool in that toolbox.

Nicole Witham ([00:31:17](#)):

Yeah, yeah. Well I'm getting back to kind of even you were mentioning maintaining a scientific method of some sort. Meaning making sure that you were able to measure anything. Beyond those projects and the research that you were trying to accomplish, is there any other record keeping that you kind of maintain for the whole composting process? You mentioned obviously taking the temperature. Do you have any tips and tricks? What do you use? You use an app? You use a spreadsheet? You got a notebook?

David Bill ([00:31:55](#)):

I can't recommend our approach. I mean, Faith will attest to--

Nicole Witham ([00:31:58](#)):

Okay, that's a good disclaimer, everyone.

David Bill ([00:31:59](#)):

... what bit I... that I spend a lot of money on why. They're like--

Nicole Witham ([00:32:00](#)):

Just so everyone knows, Faith is nodding and laughing everybody. Just want to make sure--

David Bill ([00:32:07](#)):

Yeah, it is--

Faith Van De Putte ([00:32:07](#)):

He has bought so much wire.

David Bill ([00:32:10](#)):

I have like an old-fashioned system that's all wired... but it's pretty cool. It shows up on my phone. I looked at it this morning, and I was super proud last night. I showed Faith. It's like, "Oh man, I got everything. I got all the temperatures just right." And I looked at it this morning and they're all--

Faith Van De Putte ([00:32:25](#)):

So this is data logging the temperatures in the compost piles.

David Bill ([00:32:31](#)):

Yeah. And so they all show up as graphs. I have, I don't know, like eight temperature probes that are all hooked to a web connected data locker. It's called well server. But anyway, I don't recommend it. There's better systems now and we could totally turn somebody onto. That's simpler.

Nicole Witham ([00:32:53](#)):

But that's pretty cool that you did that. That's pretty cool.

David Bill ([00:32:56](#)):

It's really important actually to have some sort of data logging temperature probes because A, we're supposed to keep those temperatures and B, seeing... and a graphing thing because you really want to see what's happening. I'll go up there a couple of times a day sometimes and mess with nine different valves and the speed of my blowers.

David Bill ([00:33:17](#)):

In these aerated static piles, the blowers are all about sort of cooling, providing enough air so that the microbes are happy. Because without any air, the piles won't heat up, the microbes aren't doing their thing. You're basically not making compost without air. So you've got to get them enough air. But at a certain point, once the microbes are happy, they will overheat it and you're adding more air than they need to cool a pile off. And so that's kind of modulating that, and it's a lot of people get like, "Oh, it's really hot. That's really cool." Well, it's not if you get it too hot. It's not good.

Faith Van De Putte ([00:33:57](#)):

What's too hot?

David Bill ([00:33:57](#)):

It's too hot. It's like you're basically going to volatilize a lot of your nutrients.

Faith Van De Putte ([00:34:02](#)):

What temperature?

David Bill ([00:34:05](#)):

Really above 150, and it's too hot. So that occasionally happens. If you can--

Nicole Witham ([00:34:15](#)):

With all those temperature probes, what's the sweet spot you're aiming for?

David Bill ([00:34:19](#)):

I mean, interesting that you want to get it above 131. And you take it there for three days, but... and you want to keep it below 150. And so the sweet spot is in there, in that range. It actually breaks down faster at 110 or something like that, my understanding. So letting it drop down is okay after you've kind of tried to kill the pathogens in that temperature.

Faith Van De Putte ([00:34:47](#)):

Yeah. That's the 131 is killing weed seeds and killing pathogens. So that's why that's the magic number there.

Nicole Witham ([00:34:58](#)):

(Music) This episode is generously supported by the National Farmer Union's Local Food Safety Collaborative, a network of farm and agriculture organizations, providing education and training for local food producers. Have you filled out an episode evaluation? Your feedback helps us adapt and update future programming and to communicate needs and impacts to our funders. And remember, there's a giveaway going on, right? There are prizes from Osborne Quality Seeds, Chelsea Green Publishing and the Greenhorns. Each evaluation submitted for season one episodes counts as one entry in the giveaway. And more juicy prizes to come for Season Two. Evaluations for each episode can be found at the farmwalks.org website.

Nicole Witham ([00:35:50](#)):

I want to make sure that we also kind of see the full cycle here. So you mentioned at the beginning that you really are doing this to keep this feedback loop going on the island, not only with your own feedstocks, but with others that are coming in. And so you do sell some of these products off farm, and how do you sell them? What are they packaged in? You got bags, you got bins. It's more from a farm perspective, think of it from a farmer perspective. If they wanted to set up a system like this, how are you marketing your product?

Faith Van De Putte ([00:36:29](#)):

Well, I was just chuckling because we don't do any packaging.

Nicole Witham ([00:36:34](#)):

Yeah. Tell us more.

Faith Van De Putte ([00:36:36](#)):

Well it's pretty much it's bulk sales. So we have on-farm load up, so we sell mostly by the yard. So you bring your pickup truck, we load you up. Or David has a dump truck, and he will... does delivery of two yard minimum. So up to... How much can you fit in there? 10, 12?

David Bill ([00:36:57](#)):

10 yards, 12 yards.

Faith Van De Putte ([00:36:59](#)):

Yeah.

David Bill ([00:36:59](#)):

Yeah, top of.

Nicole Witham ([00:37:00](#)):

David, do you want to tell us more about all the toys that you have on the farm?

David Bill ([00:37:04](#)):

Oh my gosh. I did--

Nicole Witham ([00:37:06](#)):

So far I heard excavator, dump truck. I'm sure you have a tractor--

David Bill ([00:37:10](#)):

Well it's not really fair-

Nicole Witham ([00:37:10](#)):

... or two.

David Bill ([00:37:11](#)):

... because we came out of... I did do an excavation business beforehand.

Nicole Witham ([00:37:16](#)):

Okay.

David Bill ([00:37:16](#)):

So this was kind of a segue of like, we have a sweet little... It's embarrassing because I have a friend, Tim O'Neill, he has a place on the island and he owns Engineered Compost Systems. So I have his place. And he said, "I think you have..." He engineers a lot, sort of the biggest compost facilities in the country, and he's been really generous with us. And he said, "I think you have the highest capital cost for throughput of any place I've seen." And that's not really something to be proud of in this realm. But anyway, it's the case though.

David Bill ([00:37:56](#)):

When we teamed up a farmer presentation at Tilth, we went, joined up with Chris Henderson from Small Acres and he does this... There's ways to do compost on farm with a lot less equipment. And he does these aerated static piles too. Both of us are firm believers in the aerated static pile system.

David Bill ([00:38:23](#)):

But as far as the question like, "Could I just do with a quick list?" The tub grinder, Morbark 1000s, like 350 horsepower tub grinder, so we can turn all that waste into something that's sort of manageable. We have an excavator and a track loader and an articulating loader in the tractor and all the hay equipment, and then the middle tractor to do the... Yeah, we have stuff. It's like you tell people who are doing this Climate Farm School, but then it's like, "Well, we could also do heavy equipment operation." I could

teach that because I'm actually pretty good at it. And we have a lot of toys. Yeah. We're trying to cover all our bases. We can go either way.

Faith Van De Putte ([00:39:08](#)):

So there's one piece of equipment that he didn't mention that I just want to highlight for a moment, because it was really key in our compost business being successful, and Tilth was also kind of part of us getting it.

Faith Van De Putte ([00:39:26](#)):

So when we first started out, we did not have a screener. So we had the tug grinder and we had chunky style compost. And I thought it was really cool. You'd have a cow jaw bone in there and you'd have these big chunks of wood, which actually I was like slow release nutrition. And we were like, "Okay, this is great. We're not going to get a screener. We're just going to do a lot of customer education and people are going to love these big bones, right?" Well that didn't really work so well.

Faith Van De Putte ([00:40:02](#)):

And finally we realized we have to get a screener if we're going to be able to sell our product. Yeah. We got with a Washington State Organic and Sustainable Farming Fund grant. And in it because there was a match, how are you going to pay for the rest of it? And we were like, we wrote into the grant, oh, we had this idea, "We'll do a compost CSA and buy your compost forward and we'll raise the money in order to get the screener."

Faith Van De Putte ([00:40:37](#)):

And so we wrote the grant, sent it off and didn't hear anything, and didn't hear anything. And so we didn't hear anything. So we didn't kind of get it together to do the compost CSA thing. And then the grant came through and they're like, "Okay, we want to see the matching." And we were like, "Oh my gosh." So we just whipped it together. We put together this newsletter and we put it out to our community saying, "Hey, help us buy this screener and buy it forward, compost CSA." And people were super excited and we sold out of the shares. We were selling in 24 hours.

Faith Van De Putte ([00:41:16](#)):

And so then we had to put out, "Thank you everybody." And then people were like, "Oh, I wanted to get that." And so we're like, "Sorry, we're not selling anymore because it was a reduced rate that you got if you bought it and we can't sell everything that way."

Faith Van De Putte ([00:41:36](#)):

We ended up we're able to purchase the screener. So then we were able to have a screened product, which people were like was more what they wanted. And it ended up being the best marketing campaign we could have had. We probably couldn't have planned it better. So that really kind of launched the business as far as selling compost.

Nicole Witham ([00:42:01](#)):

Sure. Is this kind of a main component of your farm enterprises, would you say, in terms of--

Faith Van De Putte ([00:42:05](#)):

Yes.

David Bill ([00:42:11](#)):

I was going to chime in about the biochar. The other reason to do it is because it further complicates things and we're-

Nicole Witham ([00:42:17](#)):

Oh of course.

David Bill ([00:42:19](#)):

... we love how can we make it more complicated? So yeah, we have other elements to the farm, like a farm stay and a yoga studio and vegetable gardens and whatnot. So blueberries.

Faith Van De Putte ([00:42:31](#)):

Blueberries.

David Bill ([00:42:32](#)):

Yeah, because we have so many wood chips. The best wood chip customer was a blueberry customer, so okay, we'll do our own blueberries. And yeah, how can we complicate life? But anyway. Yes, definitely, the compost and the wood chips are more than half our sort of gross sales.

Nicole Witham ([00:42:54](#)):

Fantastic. Well, thank you so much for sharing about all this cool work that's happening out there on Lopez Island. And if any of you don't know, that's in the San Juan Islands, if we didn't make that clear out here in the Pacific Northwest. We have just a few rapid fire questions for you guys.

Faith Van De Putte ([00:43:14](#)):

Okay. Bring it on. Bring it on Nicole.

Nicole Witham ([00:43:20](#)):

What do you love about farming?

David Bill ([00:43:24](#)):

Well, connections to nature, being outdoors, feeding people and the possibilities for climate action in the farming room. Let me get that.

Faith Van De Putte ([00:43:36](#)):

And I love having meaningful work and always learning and get to relate to plants and animals and natural processes and serve our community. And also I love the teaching aspect with the interns as well.

Nicole Witham ([00:43:51](#)):

And what do you not love?

Faith Van De Putte ([00:43:54](#)):

The constant sea.

Nicole Witham ([00:43:55](#)):

Never stops, right?

Faith Van De Putte ([00:43:56](#)):

It never stops.

Nicole Witham ([00:43:58](#)):

David?

David Bill ([00:44:00](#)):

I could echo that. Especially with what we've created. We sort of created a little bit of a nightmare. We never know what's going to get dropped off. And on a busy day it can require three trips up there to push stuff out of the way. And it's like, "Oh my gosh, what were we thinking?" Anyway, it's also but this cool stuff. It's all this stuff that gets dropped off, it's all organic matter. They just dropped it off. How cool is that?

Faith Van De Putte ([00:44:24](#)):

It's magic, magic.

Nicole Witham ([00:44:27](#)):

And then I feel you guys already answered this one because what is your favorite thing to do in the off season? Most farmers just laugh at us when we ask this question.

Faith Van De Putte ([00:44:37](#)):

I know it's like, "Off season, what's that?" But I did think of something.

Nicole Witham ([00:44:41](#)):

Okay, great.

Faith Van De Putte ([00:44:42](#)):

So the Tilth conference is one thing that we usually go do in the... I mean, not last year. But that is something that we look forward to in the off season. And it's usually one time that we try to get off the farm.

Nicole Witham ([00:44:58](#)):

Sure, sure. Okay. So Faith, it's great that you mention that and I hate... I don't want to jump in here, but just so you know, Tilth is going to be having the conference live and in person, I believe, even for portions of it. It's going to be held in Lynnwood this year in mid-November, the 19th through the 21st.

Faith Van De Putte ([00:45:16](#)):

In the off season we also try and do visioning and try and research things, or at least in theory it's during the winter that we will do that.

Nicole Witham ([00:45:26](#)):

Let me clarify. So what you guys do for fun in the "off season" is learn. You just like to learn more [crosstalk 00:45:36].

Faith Van De Putte ([00:45:35](#)):

Yeah. Oh. And usually infrastructure projects. Well, you didn't say what your favorite to do for fun.

David Bill ([00:45:45](#)):

It is fun to go. It is fun to learn. I mean, it is part of our love, and we love doing that.

Nicole Witham ([00:45:49](#)):

I'm not saying that's a bad thing.

Faith Van De Putte ([00:45:50](#)):

Yeah.

David Bill ([00:45:50](#)):

Especially you can still do that and then know push stuff out of the way. So it's like trips to--

Nicole Witham ([00:45:55](#)):

Yeah. David's like, I just want to get back on some sort of form of heavy equipment. Okay.

David Bill ([00:45:59](#)):

Yeah. I can get back on a loader.

Nicole Witham ([00:46:02](#)):

Oh my gosh. Okay. So, well, speaking of that, this is one of my favorite questions actually because I feel everyone says some pretty cool stuff. So if you could pick a certain skill that you can just have instantly, all of a sudden you were really good at something, what would it be?

David Bill ([00:46:18](#)):

I'd be really good at managing people, and I would be patient. Wow.

Nicole Witham ([00:46:24](#)):

Wow.

David Bill ([00:46:25](#)):

That would be so cool.

Nicole Witham ([00:46:27](#)):

So you were saying-

David Bill ([00:46:27](#)):

I could be patient with people. I mean, I think they might go together. I mean maybe if I was patient, that might be-

Nicole Witham ([00:46:32](#)):

That I was not-

David Bill ([00:46:32](#)):

... all I needed to be good with people.

Nicole Witham ([00:46:33](#)):

I was totally not expecting that.

David Bill ([00:46:36](#)):

Well, you don't know me very well.

Nicole Witham ([00:46:38](#)):

That's good [crosstalk 00:46:38].

David Bill ([00:46:37](#)):

But anyway impatience. Let's get this done soon. Comes from fishing. Yeah. Okay. It's fine.

Nicole Witham ([00:46:47](#)):

What about you, Faith?

Faith Van De Putte ([00:46:49](#)):

Well, I'm not very musical, so I would be able to play guitar and to sing.

Nicole Witham ([00:46:56](#)):

Oh see, there you go. That's beautiful.

David Bill ([00:46:57](#)):

That's sweet. She sings good a lot of different ways already.

Nicole Witham ([00:47:03](#)):

Yes, yes.

David Bill ([00:47:03](#)):

A lot of different elements.

Nicole Witham ([00:47:05](#)):

Yes. Well this has been really fun you guys. Thank you so much for taking some very, very prime time here in June to come join us and talk to us. We're really, really grateful for that.

David Bill ([00:47:20](#)):

Oh, it's been really fun, Nicole. It's been fun to be here. It's fun to do this with you. Yeah.

Faith Van De Putte ([00:47:33](#)):

Yeah. Mm-hmm (affirmative). I second that.

Nicole Witham ([00:47:39](#)):

Up next, I'm excited to connect with Nate Stacey, a soil scientist and Farm Program Director for Tilth Alliance. Nate's going to share more with us about the basics behind building a healthy compost pile.

Nate Stacey ([00:47:53](#)):

My name is Nate Stacey and I am the Farm Program Director for Tilth Alliance and we do lots of things, including acting as a resource for farmer-to-farmer conversations. You can find out more information at tilthalliance.org.

Nicole Witham ([00:48:11](#)):

Welcome to the Farm Walks Podcast, Nate Stacey.

Nate Stacey ([00:48:15](#)):

Hello.

Nicole Witham ([00:48:16](#)):

Hello. I would love to have you give us a little bit more background about your new role at Tilth.

Nate Stacey ([00:48:23](#)):

Sure thing. My name is Nate Stacey. I'm the Farm Program Director at Tilth Alliance. And I have, well at the time of this release, at the time of this recording, I've been here for about three weeks. Prior to that, I was a Post-Doctoral Research Associate in the Center for Sustaining Ag & Natural Resources at WSU. And I have a background in soil science.

Nicole Witham ([00:48:52](#)):

Just so everyone knows, that means that Nate is a soil science geek in a good way, in an excellent way, right? Yes.

Nate Stacey ([00:49:02](#)):

Yeah. Yes.

Nicole Witham ([00:49:04](#)):

And then what is it that you have done with Midnight's Farm in particular you want to share?

Nate Stacey ([00:49:10](#)):

Yeah, Midnight's Farm, both David and Faith who both I consider good friends now, were involved in a Western SARE research project. It's a professional and producer grant that was entitled Investigating the Elasticity of Biochar, Manure Handling, Compost Feedstock, Soil Amendment, and Carbon Storage.

Nicole Witham ([00:49:37](#)):

Awesome. That's cool. So we're going to talk a little bit more about composting in general and how it relates to some of the food safety aspects that we talk to David and Faith about. But it's really awesome to hear that you also have that biochar project there. That's really exciting. So tell us for our new and beginning listeners, what are kind of some of the most important things to consider when producing and handling compost?

Nate Stacey ([00:50:09](#)):

Okay. There are a couple of things. Probably of the first things that you'll consider when you're thinking about composting is the feedstocks, which is a fancy way of saying the ingredients and then the proportions of those ingredients. And there are lots of ways to figure out how to get a good blend.

Nate Stacey ([00:50:33](#)):

One example is the WSU Compost Mix Calculator, and that will aid you in choosing your ingredients and the proportions of those ingredients. So that's kind of the--

Nicole Witham ([00:50:44](#)):

Oh, super cool.

Nate Stacey ([00:50:45](#)):

... first start. And there's lots of those calculators out there, but since I'm biased and used to work at WSU, I'm going to promote that one.

Nate Stacey ([00:50:55](#)):

Secondly, the safety of the composting. So temperature is critical in producing the compost, but also in making it safe. So the temperature itself and then the length and time at which that compost is at that certain temperature. Then after that, the compost will cure for a period of time, and that further improves the compost.

Nate Stacey ([00:51:23](#)):

And then as far as the use of the compost, then you have the application of it to some field. And as far as a consideration, that's going to be what your soil fertility is, how much fertility or nitrogen is in the compost that you produce and what are the needs of the crop that you're trying to grow, particularly the nitrogen needs.

Nicole Witham ([00:51:49](#)):

Very cool. So that's just the breakdown too. And I love that we got to hear more about David and Faith's particular system. And one of the terminologies that came up was the aerated static compost pile. What's a brief description of what that is? What are its characteristics?

Nate Stacey ([00:52:13](#)):

Yeah, absolutely. And it's actually in the description. So it's aerated. So there are blowers, generally speaking, that are situated beneath the compost pile in some manner. And that forces air through the compost pile itself. 'Static' just means that they're not turning that compost pile over. So once they get their ingredients and their proportions, they put it on some type of concrete pad, or maybe they've got

a big, like a container system. They've got air underneath it. It's forcing air and they just leave it as it is. Some composters will turn it over, but for this, because it's an aerated static compost pile, it just sits there.

Nicole Witham ([00:52:57](#)):

That's it. It's in the name.

Nate Stacey ([00:52:59](#)):

That's it. It's in the name.

Nicole Witham ([00:53:00](#)):

Yeah.

Nate Stacey ([00:53:01](#)):

This time the scientists actually did a good job describing it.

Nicole Witham ([00:53:04](#)):

No, I love it. It's great. So useful. And so going back to temperature as well, you mentioned temperature being a kind of a really critical aspect of the composting process. Not only in the temperature you want to kind of get it up to, but how long you want that temperature to be. So what are the minimum temperatures and time requirements to achieve while composting?

Nate Stacey ([00:53:31](#)):

As a compost producer, your compost needs to be above 131 degrees Fahrenheit for three days. That is known as the PFRP standard, which stands for the process to further reduce pathogens. And this standard, if I remember correctly, came out of the EPA when it was driving those processes and standards for bio solids.

Nate Stacey ([00:54:03](#)):

Essentially what's going on in there is the microbial organisms are activated by the food or energy and they produce CO₂, water and a whole lot of heat. And then that destroys pathogens that might be salmonella or E. coli. And it also reduces the viability of any weed seeds.

Nate Stacey ([00:54:32](#)):

The thing about that timeframe or the temperature and the timeframe, so again, above the 131 Fahrenheit for three days, not every producer and not every compost... let's see, compost production system will get to that 131 at the same time because to get there, it depends on a lot of management parameters that include the aeration, the turning, if it's not a static pile, the cover over the top of your compost, the feedstock, or the ingredients, the moisture levels, and many other potential variables.

Nicole Witham ([00:55:15](#)):

Really, building a compost pile is really kind of an art. You want to get the right mix of things and the right amount of air and space in between things. And then you want to know when to maybe agitate it and release some heat versus when to let it sit longer. And you mentioned curing. So what happens when you reach that? You reach that desired temperature for that desired amount of time. Then what?

Nate Stacey ([00:55:47](#)):

After you've reached that maximum, or not the maximum, but that 131 degrees Fahrenheit, and it'll be there for three days or maybe four days. It has to be there for a minimum of three. And it could be there maybe for six or seven days, or maybe it's longer. At some forms--

Nicole Witham ([00:56:05](#)):

Yeah. Is it better to go a little longer? Do you have any--

Nate Stacey ([00:56:11](#)):

I think the minimum is the standard and maximum... That's a good question. I mean, if you're able to maintain it there, you're probably getting some more transformations. I know that you don't want to go up too high because then you can destroy some of the beneficial bacteria.

Nicole Witham ([00:56:28](#)):

Yes.

Nate Stacey ([00:56:29](#)):

And that varies about what that upper level is, maybe 150 to 160 Fahrenheit. But again, you're going to have different arguments from different people saying, "You can go as high as you want and for as long as you want."

Nicole Witham ([00:56:41](#)):

Sure. Okay.

Nate Stacey ([00:56:43](#)):

So as the compost, or I should say, as the compost moves out of that kind of thermophilic stage, they call it the thermophilic stage, which is above 113 Fahrenheit and you've got microorganisms feeding and degrading carbon and decomposition happening, at some point, the microorganisms kind of use up all the really easily degradable compounds and the temperature will begin to drop. As the temperature drops, it goes below 104 Fahrenheit generally speaking. You have entered the curing stage, and according to FSMA, the produce safety rule, that further reduces pathogens.

Nate Stacey ([00:57:27](#)):

What's interesting, though, in that curing process is that you also get some bacterial activity. It shifts from different communities of bacteria. So there's a community that likes it really hot. And then you go to the curing stage, and it's a different community of bacteria that don't like it so hot. But in that curing period, you can also get some stabilization of the nitrogen that you want to eventually use for your crop. So that usually generally happens in the curing stage, generally speaking. It's happening throughout, but you get some stabilization in the curing phase.

Nicole Witham ([00:58:06](#)):

Is achieving that or knowing when and how to kind of stop and utilize something... When does that happen?

Nate Stacey ([00:58:14](#)):

That's a great question. And there's a lot of different advice and different suggestions. And there are systems to evaluate that. I think once you see the temperature drop down below that 104 F you know that you've moved through the active composting phase and are into the curing phase. And you can cure that out for a long period of time.

Nate Stacey ([00:58:36](#)):

Some will use a Solvita test to... which is a way to evaluate if the compost is stable. Different people will have different suggestions. And I think it depends on what you're trying to do with your compost, one, and are you trying to move it off where it is? Are you trying to sell it? Are you trying to get it into the ground? I think that really comes down to the producer's intent, if that makes sense.

Nicole Witham ([00:59:03](#)):

You better become a compost connoisseur then is what you're saying?

Nate Stacey ([00:59:07](#)):

Connoisseur. Yes.

Nicole Witham ([00:59:08](#)):

A connoisseur of compost if you're going to go down--

Nate Stacey ([00:59:11](#)):

Exactly.

Nicole Witham ([00:59:12](#)):

... the on-farm compost.

Nate Stacey ([00:59:13](#)):

That's right. And we didn't discuss this, but there are many, many resources out there for composters including WSU's compost facility operator training, but there are resources to help you develop your feedstocks and your composting process and to know [crosstalk 00:59:36]--

Nicole Witham ([00:59:36](#)):

Yeah, your whole system. Mm-hmm (affirmative).

Nate Stacey ([00:59:38](#)):

Exactly. Yes.

Nicole Witham ([00:59:40](#)):

And part of that whole system is literally just keeping track of everything. So you really need to keep track of all of the different stages of the process.

Nate Stacey ([00:59:51](#)):

That's right. Yeah. In many ways you're being your own compost scientist. So depending on how much water you put into your system, what were your feedstocks at that time of year? Keeping track of all

that is critical is that you are able to meet the minimum standards, so that 131 F over three days with temperature sensors and whatnot.

Nate Stacey (01:00:18):

But at the end, your end product then can be somewhat consistent, relatively speaking in the world of composting, based upon what you've done in the past. And you can also look and see what works and didn't work. I mean, even if you are out in the field and you've added X amount of water to your system, and you just write it down, that's really helpful in future composting attempts.

Nicole Witham (01:00:45):

Mm-hmm (affirmative). And then there's just making sure you're creating a safe and usable product, right.

Nate Stacey (01:00:54):

Right. Absolutely. I would imagine that keeping track of that also helps protect your investments as well so that you can show to other people that you are tracking and you have a good understanding of your compost system and how you are composting the materials that you're composting.

Nicole Witham (01:01:10):

Well, that I think is such a fantastic 101 crash course in composting right there. I think that's a really interesting thing is the project that you were a part of out at Midnight's Farm. Do you want to share a little more about that project in particular and what you guys were doing out there?

Nate Stacey (01:01:30):

Sure. Yeah, Absolutely. And I won't go into too much detail only because it's... the grant itself actually doesn't end until the spring of 2022. We're in 2021, right? Yeah, we are in 2021.

Nicole Witham (01:01:41):

Yeah, it's coming. It's happening.

Nate Stacey (01:01:43):

It's COVID time. You never know what year it is. So I mentioned the title. It was investigating the elasticity of biochar, and essentially we took biochar and used it throughout the farm in manure handling, as a feedstock or an ingredient in the composting process and then as a soil amendment. And we partnered with five other people, all of which who I'm going to have to scratch my brain and remember – Forage, Lopez Harvest, Helsing Junction, clearly Midnight's Farm and Short's Family Farm. And that was all part of that Western SARE grant.

Nate Stacey (01:02:17):

And we made compost and then we tested it in broccoli. If you're really interested and you really want to geek out, you can look at some of that data at Western SARE. And just searching that, investigating the elasticity of biochar will lead you to those reports. And I won't go into too much more detail only because it ends in 2022, and we're still looking at some of the data. But it was a great project. We were able to maintain it through COVID and we had a lot of good partners and had a lot of good fun.

Nicole Witham ([01:02:52](#)):

(Music) Well, thank you so much, Nate, for coming and talking a little more about soil science and compost and all these... just spreading the good word of soil health.

Nate Stacey ([01:03:04](#)):

Yeah, well, it was a pleasure to do it. I enjoyed it.

Nicole Witham ([01:03:17](#)):

(More music) So you may have noticed a few Tilth Conference plugs going around. Well, here's another. Mark your calendars for this year's Tilth conference. It's Friday, Saturday and Sunday, November 19th, 20th and 21st at the Lynnwood Convention Center with virtual options available. Go to tilthalliance.org for more information and to register. Be sure to like and follow our farmers from today, Faith and David of Midnight's Farm on Lopez Island at Midnight's Farm. And of course follow our Farm Walks organizers at Tilth Alliance and at WSU Food Systems for announcements and resources.

Nicole Witham ([01:03:59](#)):

And while you're in the following mood, hop on over and feel free to follow my farming in life shenanigans at Farmer Nicole. Transcripts, show notes, today's evaluation form, and more information about upcoming episodes can be found at farmwalks.org. If you enjoyed this episode, you can rate, review and subscribe on Spotify, Apple Podcasts, farmwalks.org, or wherever you access your favorite podcasts.

Nicole Witham ([01:04:26](#)):

A big thanks to all of our listeners for coming back for Season Two and continuing to submit awesome questions through our Ask a Farmer Form. Keep it coming. It really helps bring this conversation to life. And a shout out to our awesome Farm Walks Podcast production team. Behind the scenes, logistics and general wrangling by Teri Rakusin, theme music by Abakis, Farm Walks website, logo, and pod art Riled Up Goats and our audio engineer Aaron Mason. I'm your host, Nicole Witham. Thanks for listening everyone.