

## Build Bins

### Transcript – Vermifurniture

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Welcome back to Build Bins. Why yes, there are more ways you can vermicompost. A couple of years ago, we started making vermifurniture; it's furniture with a worm bed in it. What could be better? Not much. So vermifurniture, so far, we've done coffee tables, boxes, and a vermibench. Let's get into the details and hopefully inspire some of ya'll. This is a coffee table that we made. It was out of fresh-cut lumber yard of the sawmill, so it did have a little bit of drying to it, but we just took an old coffee table, took the top off of it, gave the tops to the goats; kind of like a little seesaw we made them, and then we mounted this one on top of it, so it would be on a stand. This is the top of it just made out of different pieces of wood and he sands it and uses tung oil, and he's very meticulous about the finishing sheen on there. Just tung oil was all that was used; tung oil, sanding, tung oil again. And on tung oil, in case you didn't know, is a tropical plant, t-u-n-g is what the seed is called. It's not actually made from tongue oil, our tongues. I didn't know when I first heard of it, so I didn't know if you knew. So, when you open up the coffee table, so you take off that top lid, wanted to show you these two pictures. This is where we get into a little bit different. We have two trays for this one as you can see on the picture on the left. I wanted to show you that; let's talk about that first. So, what you're looking at is the two trays. The holes on there we covered with screen. We wanted to allow more airflow especially since these had more surface area to them. We wanted to increase airflow, so the two long bins just stack on top of each other. If you look at the picture on the right, that middle bar, you can actually pick up that whole thing from the middle and that's how the top one is and sets on top of there.

So basically, it's just like a box and we used hardware cloth, and we realize we'll get some things falling out into the bottom tray, but the bottom piece is a solid piece of plywood with a little trim lip around it, in case anything did fall onto the bottom plywood, it won't go anywhere. And then made two rectangle beds divided down the middle, stapled hardware cloth on the underneath of each side, and this wood we didn't treat, and it's been holding up really good for us aside from the drying. In hindsight, we should have let the wood dry out a little bit more, and the bins being inside, the woodstove really dries them out pretty quickly. But it's a beautiful piece, it's a great conversation. People love the top of it and then they start looking at the depth and being like, what is in that coffee table? And we get to show them a worm bin. So, what we do is, I just showed you the beginning of it, we'll feed on the left side starting out here. It goes directly on the bottom screen. Again, with screen I'd always put down a layer of cardboard or paper first. I find it just helps that initial process take part without losing a lot of the small pieces. We feed our worms a lot of tea leaves and coffee grounds. I did tea every day, my husband drinks coffee, so that is what our worms mostly get unless we have an overabundance, maybe some produce that has gone moldy. We get moldy produce as well from some places and sometimes it just happens here. That'll go to the worms because it's not something we would feed to the chickens directly. So, we'll just keep putting paper down and coconut core, and tea, and I'll keep just layering it, and layering it, and layering it on there, and then when that side fills in, the option with this, I can move to the right or I can put that tray on top and have them migrate upward.

So far, we haven't used the second deep tray. We've found that the first layer has been enough in this, so maybe if you do choose to build a coffee table or to modify an existing coffee table, just note you don't have to have a lot of surface area. Generally speaking, one pound of worms will transform about half a pound every other day of waste. When I first got into worms, a lot of the literature I read was a pound of worms will eat a pound a day. I haven't really found that to be true. There's still plenty of scraps in there and unfinished compost. Even the core, you can tell when they've eaten it, it has a much darker, richer color than it previously did. So anyway, a pound of worms will eat about a quarter pound a day or so of materials, and then adding your carbon and your newspaper on there is good. So, it can be a small end

table. Basically, you just need one square foot of space. I wouldn't start off with anything smaller than a pound of worms unless you're in a really small spot or maybe tight on funding, get some smaller packages of worms. But you want to be able to see some progress in your worm bin as well and if you start off with a small supply of worms, then it's going to take a lot longer for the population to get established and start composting, which you need it to. So, hope you enjoyed the coffee table.

Let's talk a bit about boxes. Boxes are really simple. We got into making these; most people have room for a little box of worms. The boxes are decorative enough that you could still set out, but it's not something as large as a coffee table or a bench. But they're smaller décor, you can paint them, horizontal migration; there is some upward mobility, but you're basically encouraging them to move to the fresh bedding on the side, and we'll talk a little bit more about that when we get into the vermibench. The little boxes are great for all sizes. Maybe you need a step stool to get to your bed. You can make a little box and put some worms in there. You can custom build them any size that you want and as we mentioned earlier that one pound of worms needs one square foot of space. After three months, you can do your first harvest. We say wait three months to allow the worms to get established, cocoons to hatch, cocoons to be laid. When you do your harvest, there's a good chance you're going to miss some worms and miss some cocoons, so it's nice to let your population get up a bit. But a pound of worms will transform about a quarter pound of waste and after you've waited that initial three months, you'll be able to harvest based on your feeding, and what you're feeding them, if you're blending it up or chopping it up, it'll go through a lot quicker. But then you'll be able to harvest—it could be every couple of days, once a week, twice a year; there's a lot of flexibility with worm farming.

So, the minimum depth of a box is about one foot and some of them are not as deep, but we're just trying to keep that one foot of space in mind. The minimum length I would do a box is two feet. I mean anything smaller, I'm not really sure. I guess it depends on your materials. If you don't have many materials and you're tight on funding, and you can just build a six-inch by ten-inch box, go for it. So, the minimum width would be six inches and you really want enough depth in your box that you can bury compost scraps in. So that's the minimum thing about boxes. I'll show you some photos. So, these are some boxes that we made with some lumber or some shelving that we pulled out of the basement. It's pretty nice stuff; it's tongue-and-groove and he either cut dowels or saved the sawdust to fill in the screw holes there on the right. It's just a sheet of plywood on the bottom, you can use two by fours or you can make it all out of one sheet of plywood and then the lid over here on the left is lots of tung oil, as you can see, high gloss, and these were just some scrap pieces of wood that he sanded down and cut into the triangles.

So, when you open up the box, it looks a lot like the coffee table where you're going to feed on one side and slowly start feeding on one side. Even again here, I put cardboard down on the bottom. I think it also really helps absorb any excess moisture that might be leaking off the bed; kind of helps regulate it. So yeah, so you just keep feeding on it rather than feeding on top and layering with carbon. You feed on the side and put some carbon on top and you just work your way across the box and depending on how long it takes you to do that, if it's your first box, you want to still wait three months. You can still keep feeding it and then just start back over, and if you started on the right side, go back to the right side and dig a hole and put your produce scraps or your compost in there. And you would just keep working your way around the box. The reason we do that is to allow the worms a place to go in the bin that's not actively composting, where it's not actively heating up. That produce scrap will heat up momentarily. It could, depending on what it is and the amount, it could be a couple of days, it could be a week or so that it'll feel warm there.

So that's the box. We did paint it, but we lined it with plastic, and it's held up really good and super cute. We have a couple of these around town. And more of the boxes. Here's just another lid to get you interested in how you can use different pieces of wood. That's a presentation with one of the boxes I did at a local nature school. When we first started making the boxes, you're really getting the evolution of our vermicomposting business here. We put screens in the middle because the thought was, there was always a screen divide, much like the waterspout, it took me a while to learn this. I thought I really needed the screen so this way I could rotate my feedings. Well, the worms don't really care if there's a screen divider or not, and the screen frames were a little unwieldy to make. I mean, it was several cuts on the table saw, varying depths, and splicing wood apart; I don't know if it's splicing but cutting wood apart. They were a lot of

work added to making the box. So, we've stopped putting the screen in the middle; don't really feel it's needed. Maybe in a larger box like our vermibench, I still have the screens in there, but on these smaller boxes, you're generally going to be adding a lot of stuff to it and digging in there quite a bit and the worms can pretty much move around.

Now when you get ready to harvest from the box, you want to continually feed on one side, and whatever side that is, preferably with the freshest bedding, right, and that will encourage the worms to move over to that side to eat, and the finished compost is on the other side. So that's why I had the screen divider up. It's just kind of like a visual aid. This is the fresh bedding, or I'm moving the worm like pasture rotation; this is where the worms are going, and then my finished compost is on the other side. But the worms didn't really seem to mind and the screens, like I said, they were just really complicated to make, and it's not really needed. The other thing I wanted to show you, the underneath of one of our lids. So, all we did was take a piece of wood and attach it to the lid, and what this enabled it to do is just to sit inside the box. So, if the lid were to get bumped or shifted, it's not going to slide off and it gives it just a really nice, like snug fit into there, but it's not like--airflow can still happen, but it gives it a better fit in there.

And this is the vermibench. This is actually the reason why I'm married to that guy. We built this, let's see--jeez, I guess about three years ago and we've built a few others and shipped them. That's interesting, but let's focus on the vermibench. So, what we have here is a worm composting bench. There's armrests, you lift open the lids there and the worm bins are underneath. Basically, where the lids meet in the middle, there's a board, a solid board in the middle, so on the right side and the left side there are two bins where the worms can migrate to the fresh bedding, but it's divided down the middle so that we can time the harvesting of the vermicompost. So, the vermibench. Here we can see under the lid it has two bin compartments for composting. We stained everything, all exposed wood, except for what was going to have contact with the vermicompost. So, if you look just past the armrest, you can see a screen in the middle, and these because of the depth of the bin, we did put screens in them, and I would advise putting screen and something with this step, it helps hold the material on that side as well. So, it allows for two active bins for feeding and two active bins for curing the compost, not that vermicompost needs to be cured.

But when you're doing something like this, it's good to allow the worms to have the ability to migrate over to the fresh bedding, so once we start feeding on the other side of the screen, we're going to wait the three months before we harvest. Otherwise, right now, we just kind of harvest as we need it for the garden or for starting seeds. So, there's a solid divider down the center, and each side then is divided by the screen you see there, and the screen is framed with a quarter-inch hardware cloth. That's a good amount of spacing for the worms to get through, it keeps all the material on one side; you're not going to get a lot of things going over. So, the interior dimension of each bin is about one foot by two feet. It can house about two pounds of worms each; that's each bin, there being four bins or compartments, I guess, altogether. So, it can process a lot of compostable materials, and it can give you a good breeding stock of worms to share with friends because they're going to want worms too. It can process about one pound of materials a day. The first harvesting, again, always starts in three months, and then it's horizontal migration as opposed to the vertical system where you feed on top and the worms move up.

I just didn't like the stack trays. For the amount of compost we have, they were too shallow, and I just didn't know where to put the trays. Like when you pick up a tray, you got to have somewhere to set that down. So, I really started exploring horizontal migration bins for ease of harvest because when it comes time to harvest your vermicompost, especially when I was selling a lot of worms at the time, I wanted to keep all my worms. I didn't want to have to spend hours sifting through compost just to save the worms. Yeah, I don't mind if they get out in the garden, but when you're selling worms, you do want to keep your populations happy. So, feed on one side, and then when that side is filled up, start feeding on the other side of the screen, and then worms will migrate over to the fresh bedding leaving the compost behind. I still do sift it and run it through a screen for harvesting just to get out the bigger, chunkier pieces especially if we're using it for seedlings or making a compost tea out of it. I let those things break down a bit more.

The vermibench materials. There is a lot that went into this. You definitely need a drill, saws, we use the table saw quite a bit, some kind of circular saw, we sanded everything, and then we took a router around all the two by fours and it's called breaking the edges where--you know two by fours are made out of right angles, right? And you just soften the

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edges so that way if you bump up to it or next to it, it's not this abrasive surface. So, we did buy mostly new materials for this. It was a big project, and we did use pallet wood for the backsplash with the square diamond shape, and we used pallet wood for the arm pieces, but otherwise, we bought everything new. And because we had use of a table saw, we were able to do 12 one by sixes, which we cut down for the divider boards and the trim around the outside, and then six two by fours which we were able to rip some of them in half for some of the bracing and support. The one by sixes we also used to make the lids, the bench seat, and then a sheet of plywood. The whole bottom of the worm bed is a sheet, well not a full sheet but we cut it, of plywood and if you don't have access to a table saw, you would just double the amount of two by fours and use two by fours on the bottom. That's daughter and him standing away. She really enjoyed helping out with this.

So, the vermibench basics. You want to build a box that fits the size of the space. They get rather heavy when you have to move them, and then we line the interior of ours with plastic to protect the wood. We put the piece of plastic in the bottom of the bin, and then we put these little rails up as you can see in the photographs along the outside, or the along--they're in the inside of the bin, but along I guess the outside walls, and then we held the plastic in place with the wood and screwed the wood in. So that really gave it a really nice look to it. It also helps ensure that no worms or compost is going to get between the plastic and the bin, the actual box, the wood, and that would cause the wood to decay at a faster rate. So, I'm not particularly a big fan of plastic; it does have some uses. Each bin should be at least one by one to accommodate one pound of worms, and if you had a two-foot by two-foot bin, it could house four pounds of worms processing two pounds of waste. And then we have a sliding tray on top of ours for tools. It's a little shallow, but it's great for keeping a spatula in there or some other small containers. That is our basics.

So, here's some other photos, I really want to try and show you what I was talking about; sometimes it's easier to see them. So, when you open up the lid, this is what you see. So, this is what I'm talking about, like the horizontal migration. You feed and load up one side, and when that side is full, you feed and load up the other side and the worms migrate over. I always wait a little bit for harvesting. We do most of our harvesting seasonally on planting season, so we don't need to harvest every day. But if you wanted a little bit every day, you could grab a handful for some plants and different things. So that's that rail I was talking about that goes along the plastic. So, it also, that extra space, provides airspace for the worms and for heat to dissipate as it's in there, but I hope this gives you a better idea of what it looks like, and you can always build one that's just one solid bin: that's okay, too. We just wanted to really strive for ways to make vermicomposting more approachable, and also to make harvesting easier. The simpler it is, the better.

Hey, everyone. Thank you so much for choosing to vermicompost and explore bin options. As you can see, there is a great variety of ways you can vermicompost just like with regular compost, there's lots of methods and every method is a little bit different for every person. If you've got one bucket, just put some worms in it even if it's just one. This way, you can just start. I used to have a bucket of worms underneath my kitchen sink, and that's where it began. And it expanded out from that and I just had one bucket, and that's okay, as long as you have the ability to bury the produce scraps in the worm bin, the worms will still eat it and it won't smell and it won't attract flies. If there's any aroma coming from your worm bin, it should smell like the forest, rather pleasant.

So, let's just do a quick review. One pound of worms needs one square foot of space. That's it, and you need to feed them. They're going to process about a quarter pound a day of material, so you need to continually replenish that. I don't feed our worms every day. Like I said our worms eat mostly coffee and tea, aside from the assorted produce that we get here and there that the animals don't eat. But I don't weigh my compost anymore. I used to weigh it to get an idea of how many worms I need, but now I have enough worm bins that I've got plenty of options, but you will too. Thank you so much. With vermicomposting, we can replenish our soils, and it's basically the only fertilizer that we use in our gardens is the vermicompost.

We use it to start seeds, we use it for new beds, we eat use it at planting, and remember compost is so loaded with microbes. It helps the soil become alive. It's really more of a soil conditioner than it is a fertilizer. Now while the vermicompost is going to have phosphorus in it, and slow-release calcium that the worms put in, those are all very important things for the plants, and you can heal your soils and grow healthy food and together we can all heal. So,

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thank you so much. I really appreciate it. I hope that you found some bins on here that will help inspire you, and I hope we helped answer some of the questions when it comes to worm farming and bins. Thank you so much and I hope that you have a wormderful day.