

This is the, "Ag Engineering Podcast," that rolls right into the details on tools, tips, and techniques that improve you, your farm, and our world. I'm your host, Andy Chamberlain, from the University of Vermont Extension and this podcast is sponsored by Northeast SARE. Thanks for listening. Today's episode comes to you from Norwich, Vermont, where we visit with Honey Field Farm, where Eli Hirsch and Valerie Woodhouse co-operate a vegetable and greenhouse business. They've been growing together since 2015, and Eli has over 15 years farming experience. Now they manage 12 greenhouses, 36 acres, with 12 of that being in annual vegetables. That being said, they're beginning farmers and entering their third season here after purchasing the farm just before the pandemic. They sell both retail and wholesale and their business grosses between four and \$500,000 a year. Today, we visit with Eli and get a tour of his 12, yes 12 greenhouses, and learn how they use them for production. Through miles of water pipe, and benches full of trays, he shares how each greenhouse is a little unique from each other and how they play a key part of their farm business. With that, let's get started and see what's inside house number one.

[Eli] So number one is the one we keep open all winter, we keep heated all winter, and we over-winter like our succulents, and, in theory, I would be doing microgreens if I had my act together. So maybe this winter? So that's why it's attached to our house, which is a really nice feature in the winter.

[Andy] That's pretty fun.

[Eli] It's really in like a, on a sunny day in like December or January, and this, right now, we have tomatoes waiting to go in the ground and then lots of peppers starting, and some heat mats that I'm realizing need to be replaced because they're all coming up extremely unevenly. And they're, I thought at first it was frying them all, but it's just, it's cold spots 'cause they're all coming up later. So it's nice that I didn't actually fry all my seed, but it's just because it's not very satisfying to look at. These are only two years old. The heater in this house is older than me, but it's been one of our most reliable so far, but these ones came in from Half Wild Farm, which is up in Bakersfield. We worked with Jen for a bunch of years at River Berry Farms. And she's now doing her own grafted tomato business. And since I do not actually know how to graft a tomato and I love seeing them-

Is that the kind that taste

Again a couple times-

every spring sell grafts?

[Eli] Yeah, so she just has, she converted her barn into a little greenhouse and just sells grafted tomatoes in the spring. And then she's a NOFA Organic Inspector.

[Andy] Oh, okay. Yep.

[Eli] But we've had really good luck. She's been sending us really great plants the last few years and it just takes a little pressure off of us, even though I have the greenhouse on. It's just like one more thing to learn that I don't have time for right now. And then their next step is that they need to be staked and

wait like a week because the greenhouse isn't quite ready, even though the tomatoes are, very ready. We call this a greenhouse, but it's not really, but this is number two, where we make our soils.

[Andy] Ah.

[Eli] So this year we've had, someone on our crew has taken a lead role and she's kind of just been managing all of the soil production for us, which has been incredible this year. So she kind of runs the show in here. We, at this point are doing three different kinds of soil. We do a flower mix, which is basically just comes in as a baled, compressed bale of like soil-less medium. And then we do a perennial mix, which is, also comes in as like a bag of like soil-less, most kind of bark-based. And we mix it with Peat Moss and then we make organic mix with Vermont compost and then peat Moss, perlite, vermiculite, blood meal, lime, Epsom, and Rootshield. But what we're, which is a recipe we kind of like took with us and kind of copied and patched together. And what we're realizing is that it has a faster nitrogen release than we want. And so we're seeing, we're realizing, plants kind of like peak a little bit earlier than we want them to. And we're, we'd really love to maybe go to like a Fort Light system, like how like Red Wagon does and they have a lot of success. And it's a big project that we are like trying to wrap our heads around 'cause we also would like to switch our flower production to organic management. Right now it is not. And that's a goal of ours coming into the farm and it's a more-

your, your potted plant flowers?

[Eli] Right, right. Right, is right now, not organic. It would never be certified because the plant starts come in.

[Andy] Right.

[Eli] Not, they're not available certified organic, but we would like to go to organic management, but it's, we are finding, it's a complicated, there's a lot of moving parts and a lot of kind of things we have to figure out and potentially a lot of, or a lot of infrastructure upgrades that we need to make that are hard to justify while we're still leasing the farm. So it's kind of a big-

What type of infrastructure is the turning point, or is the big challenge there?

[Eli] So, and I'm, I honestly, part of my motivation for having you out here is cause I wanna pick your brain on getting ideas. So there are two, there's two main issues. One is that this mixer is like designed to break bales and like have these like mixing paddles.

[Andy] Yep.

[Eli] And it's, you could just drop the soil in like the Fort Light in and like send it through the auger and it would work fine, but it's just like not super efficient. Like it just is an extra step that the machine doesn't, wouldn't need to do. And sometimes if you leave it mixing too long, you know, you kind of-

Because the Fort Light's not a bale?

[Eli] Right. It just comes in loose and it's already mixed up.

[Andy] Right.

[Eli] So especially like if you're mixing it too long, then you kind of like, over-mix the peat a little bit. So it wouldn't be like super ideal, but we could work with it. The main thing is kind of, the biggest thing is price point, just material cost, is just like, not remotely comparable, between I think our flower mix currently, even with like inflated COVID prices, like right now to make, you know, fill this machine, it costs us like \$40. And to fill this, even at the best bulk pricing with Fort Light is like \$200.

[Andy] Yeah.

[Eli] So it's, but there's there, we're trying to get creative and be like, well, where is there labor saving? You know, there's some fertilizer cost that we wouldn't have to, you know, have, but we don't spend a, it's not really a huge expense for the business. There's some labor savings for the veggie mix because we wouldn't have to add all the ingredients together. But then there's some labor loss in the flower mix because we have to screen it because it comes out with all of this.

[Andy] Oh yeah.

[Eli] So when we make our, we screen all of the stones too. Yeah, the bark isn't so bad, but the stones just beat up the auger there. So we haven't had a lot of issues since we've been screening it so intensely. But you can see, we've got like stacks of stacks of stones here. And that's just from like the last few weeks. I think we get, this is like, we fill one of these every like two or three batches.

[Andy] Yeah.

[Eli] So, but so it would add time 'cause we'd have to screen all the soil. But the other thing is that we spend a lot of time, like all of our potted plants that are in like big baskets, we generally fill by hand. So we're like making the soil in here and then bagging it and then filling by hand. So if we had the Fort Light, we could just skip this machine entirely for those things. So then it comes down to just the material cost, which is still really significant. And then the bigger infrastructure picture is where, how to get it, like how to receive those bulk deliveries, like how to store it and also how to like have a place where the truck can get in year-round, which we are lacking with our like very soft, dirt, farm roads. So that's kind of the biggest, the biggest pictures. We have some long term ideas that kind of moves everything to like that end of the farm and like puts down a lot of hard pack, but we're, we're trying to figure out if we can like maybe bump up our timeline a little bit.

[Andy] But that's, that's a lot more time and infrastructure and money that takes resources.

[Eli] Right.

[Andy] So your main benefit for this flat filler is really the mixer more than the auger.

[Eli] Well, they're both, they're both really key.

[Andy] You said if you were to use the Vermont compost, you wouldn't really need this.

[Eli] Well, we would probably, we would, in theory, replace this with a machine, like a similar machine, like I'm thinking of the one at Red Wagon where it's, it's gotta open, like you, you load the Fort Light in with like with the bucket of your tractor and they just wheel it out of the greenhouse and load it. And then they wheel it back in and it has a chain instead of an auger that dumps the soil onto the tray. So it's still a flat filler, but it's not mixing the soil as it goes. I think there's an auger that returns kind of the extra back, but it's like a similar machine and the flat filling aspect is definitely like a huge, a huge part of what makes us able to get our production done.

[Andy] Right. Do you know off the top of your head, like what's a rate of production that this could do? Or what do you, how much, how many trays can you do in a day, or just something?

[Eli] Right. Yeah. So we've been finding like, it depends on the batch because like the flower mix goes really fast and the organic mix, but generally like two people from like eight to 10:30, which is our morning block, can make probably two batches of organic mix, which is about this holds one cubic yard. Or I think it actually holds two. So I think they can make about four cubic yards of soil in like two hours and fill, that would end up being, depending on the size tray, it would be up to a couple hundred trays. So it's definitely, makes the farm run.

[Andy] Yeah.

[Eli] And when I, there was one time last year towards the end of bedding plant season where I busted a part and was waiting for a replacement and ended up just having to buy a couple sling bags of Fort Light and that like added up fast.

[Andy] Whoa.

[Eli] Yeah. So, yeah. That's pretty much, Lauren has been kind of taking charge of like keeping it like cleaned and greased and it's going very smoothly. And we have like, I have like made one batch of mix this year, which is great. That's number two, out of the 12. And then number three is where you found Valerie. So we were, this is our, some of our sunny annual plants. We have some of the stuff that they set up, got some trolleys. We've got all these drip lines that get a little bit in the way, but are pretty handy for watering the baskets.

[Andy] Right.

[Eli] I'll get outta their way and show you the next one. We re-skinned this one like a year or two ago and put in and like rewired it all, which is desperately urgent in every other house as well. We re-skinned this one last year. And that one; we're kind of doing like a few per year.

[Andy] Yeah.

[Eli] And kind of upgrading the wiring as much as we can afford to. And generally starting on the ones that scare us the most,

[Eli] which is all of them, they're all terrifying. Don't look too close.

[Andy] That are the most fire hazard?

[Eli] Oh, they're all fire, like a little, I'm just like, like the ones that, where I most fear electrocuting a customer. So this is our, the first house we turn on. This is kind of like where it all, all the flowers start in mid-February. I think the reasoning for that is because the water system originates, starts here and there's two heaters so it's, it's a pretty, it's a little bit safer one.

[Andy] Yeah.

[Eli] I'll show you the water system over here because it is an adventure. Something I learned about this farm is that there is probably several miles of water pipe under the ground, going between all these greenhouses and across the road. And, of all of that underground water pipe, there is, there is none below the frost line. Not a bit of it.

[Andy] What a bummer.

[Eli] So we spend a lot of time-

It's on the surface.

[Eli] Yeah. Yeah. So we spend a lot of time, every fall blowing out all the water lines and turning off the system. And then we spend a lot of time every spring reconnecting it all and hoping it all still works, which,

[Andy] Keeping it flowing on the cold nights?

[Eli] Yep, exactly. Exactly. Yeah. So like the, what we usually start, the thing we turn on first is the barn water so that the staff can have a bathroom. So we have the well is outside and then it comes in up above this cistern, but not into it. So it comes like through here, and then it comes up here and it goes like the top line goes through our Dosatron system and then fertilizes kind of most of our flower houses and the bottom line skips the Dosatron and goes like underground to some other houses. This one goes across the street to the field. I know where most of these lines come and go from and some of them I'm, are still a mystery and I haven't figured it out yet, but.

[Andy] I was gonna ask, do you have a map or is this all just in your head?

[Eli] I'm getting it, I'm starting to get it straighter now in year three. It's taken a while. I would have been completely lost without the help of Chris Castles from Willing Hands who worked here for a bunch of years and has very generously, helped us figure out the water lines several times over. And so it's coming in from the well here. And then it goes up to that blue one there, but then it also goes this way. And it goes from here, it goes, this is a float valve to fill this cistern which this pumps out of. And then this goes down and fills another cistern, which I'll show you in the later greenhouse. And then this one goes, takes the right, takes a left turn and goes, there's a frost free hydrant, which is a lie, in the next greenhouse over and then it also goes into-

a hydrant?

[Eli] yes, it has a hydrant, yeah, in the next greenhouse. And then it also goes into our basement where it connects with our house water system in a very home-done way, and can go then. So basically what it does is it allows us to reach certain greenhouses, specifically number one, and the barn, with our house well water in the winter, when this is turned off, and then switch over those same systems without contaminating our house well in the summer. And then this one, I don't know why, goes just to that little takeoff by the door. I don't really know why. Yeah. And I don't, I don't know what this one does. I don't know what that . I think they might be connected to like a system of ground heat pipes that are, I believe still in this house kicking around. Maybe, I think, I've been told maybe that they used to heat that wire and it would like heat the whole cistern a little bit, which I still don't really understand because the cistern only pumps across the street.

[Andy] So do you have cisterns because your well capacity is low?

[Eli] I have cisterns because Jake Guest built them.

[Andy] Right, right, right.

[Eli] He had cisterns, I believe, I want say, my guess is that, and I haven't specifically asked, my guess is that the cisterns predated this ag well.

[Andy] Gotcha.

[Eli] 'Cause I do, I think he put in the ag well maybe 10 or 20 years after-

[Andy] Right.

[Eli] getting on the farm here. And I he's, he's mentioned that the house well has a very limited capacity. It's like one gallon a minute yield and the ag well is more like 40, which gives us, we haven't run outta water here, but I think they probably put the cisterns in when they had the

[Andy] The first well.

[Eli] Exactly.

[Andy] Yep. That makes sense.

[Eli] But this is also where we keep our succulents and cacti, which we spend way too much time on but they're real fun.

[Andy] I was gonna say, is that really hard to like keep alive here in the Vermont spring?

[Eli] We, so these are what we keep in number one over the winter.

[Andy] Okay.

[Eli] So they, they stay nice and cushy and then we bring 'em out here and they.

[Andy] Are you heating number one all winter long?

[Eli] Yes.

[Andy] Oh wow.

[Eli] To like 50.

[Andy] Okay. Which it's, that's a nice tight one. Like, it doesn't take as much fuel as we thought, but that's why we do a little bit of greens in there and whatnot to kind of, we try to make it pay for itself a little bit when like propagating a lot of our succulents because it's just too easy not to. So we just like keep all the little things that fall off and they make little babies, and then we plant the little babies. And so a lot of these succulents are like third generation or so, especially this guy.

[Andy] They take a long time, don't they?

[Eli] They, like a season or so. Yeah. Yeah so like these ones, like these ones we'll pot up, I'll show you the next kind of stage of them. These are kind of doing the same thing; they're growing out little babies. And then we pot 'em into trays like this until they root, which these guys are, these guys are pretty well rooted now. So then once they're rooted in here, we would pot 'em up into like, something like this is one that we overwintered last year as just like a little, little baby. And now it's like ready to, you know, maybe get re-potted and sell this year. We'll see if this ends up being a successful business strategy, but we have a lot of fun with it.

[Andy] Well, I mean, having fun with it is half of it, right? If you don't enjoy it, then you shouldn't be doing it, so.

[Eli] Exactly. So like all of these came in last year and we kept them over and they've, you know, grown quite a bit. And then versus like the ones coming in this year are like this size. We have a lot of fun with it, but.

[Andy] It's growing cacti in Vermont.

[Eli] Exactly. We gotta find, there's so many other farms around here. You gotta find a little like, market,

[Andy] Right. Right. Find your unique, your uniqueness.

[Eli] Exactly. And these guys usually come in in kind of like a jumble. Like that's like the, the aftermath of their shipment. Sometimes it's worse than others, but they usually all make it.

[Andy] Where are the succulents coming from?

[Eli] We get most of our flower and herb starts through a plant broker. We use Henry F. Michelle's Plant Brokerage, which is, I think is based in Pennsylvania. We inherited our sales rep from Jake and Liz and she's been really helpful. And we have already actually ordered our 2023 plants.

[Andy] That's probably a good idea.

[Eli] Yeah. He was like, "Get your order in now." So basically we just rolled over this year's order and we have some time to adjust it, but we already, we like, went way up on herb starts because we, we got a lot of, last year, or we got a lot of our new accounts kind of asking us about them this spring, but they asked us in March and we placed the orders, you know, last July.

[Andy] Right.

[Eli] And there's no more to be had, but we're hoping they'll be patient with like the little bit we have this year and we promised them we can do a lot more next year, but-

Go ahead.

[Eli] So then the next house over is our shady annuals. This farm stand was here when we got here, but we added the, like the wooden piece at the back. So it was like, just like kind of an enclosed, some might say, shack.

[Andy] Yeah.

[Eli] And we have repainted it since and kind of added the fridges and the whole back section, which was the first thing we did, I think, the spring of 2020. And it ended up like saving our butts because otherwise we would have had, had nowhere to like check people out, outside safely, you know, when everyone was locked down and stuff. So it really ended up being a pretty good move. This is where we do like our shade flowers and our like accent plants and house plants and stuff. The Coleus is always fun, especially like at the farmer's market, people really like it. And we've got like some Aloes, and some Dragon Trees we've been like growing for a couple of years. And then mostly it's a lot of Begonias and stuff. I knew nothing at all about flowers before we moved here. I'm slowly learning, but I'm still pretty ignorant,

which is a little embarrassing sometimes at the, at the farmers market, you know, when customers are asking me questions and I just don't know.

[Andy] I, I am not sure.

[Eli] I'm starting to get a little more name recognition on some of them, but mostly just kind of the ones we do a lot of. But we have this, so kind of going back to the soil mix issue, which is kind of like the biggest, one of the biggest things we're trying to figure out as our business grows, is we have kind of this conflict of interest here where in order to control disease were being very careful to not over-water our plants. And we've had a lot of success reducing disease and like Botrytis and, you know, mildew pressure because of that. And we kind of are being, we've had a lot of, we've fortunately been getting a lot of guidance from like, Julie at Red Wagon is a mentor of ours and she's a great plant grower. So she's been advising us to water, keep things a little on the dry side, which we have been doing and things are generally really responding well to it. But the downside or the kind of conflict is that we fertilize through our water.

[Andy] Oh.

[Eli] So our plants are staying healthier in disease, in terms of disease, but they're not growing as fast as they would if they were getting either like the first year we were here when we were watering too much and they grew really fast but had a lot of Botrytis, versus now we water less, and they're healthier plants but they don't grow quite as fast. So that's another kind of way that like a soil-based mix would benefit us.

[Andy] Oh yeah.

[Eli] But it still comes back to that cost.

[Andy] Right. It's hard to cancel out, a taller start, you know?

Right. Exactly. And it's, you know,

[Andy] Are you gonna get more money because it's a little bit bigger?

[Eli] Right. And right. Which is a good question. I think we could get more money if we could advertise that it was organically managed, but we, but we're not, I think the price difference is not quite as much as the increased cost would be to us. We're kind of already, we feel like, you know, kind of at the high side of what we're really, like realistically able to get for our plants. This field we rent, but we haven't done anything with yet, except for host the Farm Olympics last year. But we're thinking about turning this into like perennial cut flower gardens and maybe putting in like another hoop house for like perennial cut flowers. But we'd have to check in with our landlord who is in the yellow house. So she owns like this field, this corner of our field and the two, I call 'em downstairs fields at the end of the road. And then there's a neighbor that owns like one acre triangle behind that white house that we rent that land from. And then our main production field is a couple miles down the road. And we rent, now,

24 acres there. We had 12 organic and then we just took over Jake Guest's old cornfield. So we're transitioning those to organic and then we'll have 24 acres to work with.

[Andy] Wow.

[Eli] So it's total of 36 like tillable acres, but we're planting only like 12 or so this year.

[Andy] That's still a lot.

[Eli] It's, it's a lot to, it's a lot to manage for the amount of equipment and time I have. Fortunately Jake Guest is, still has time and equipment and like a ridiculous working knowledge of this soil and kind of like, he knows exactly what field has a little bit different temperament. And so we've been working with him the last few years, kind of doing contract work with him to mostly to cover crop and kind of like, till in like, especially the rye's and stuff. Like I have equipment enough to get through with these early fields with the like oats and pea winter-killed crop, but it would take me forever to get through like the, the rye and stuff like that. So he's got like a much better tiller and a subsoiler that do a nicer job and just a lot more capacity to, to spend the time on it. I think it's been kind of a good trade-off for him 'cause you know, it's hard to slow down.

[Andy] Yeah, right, you know, he still likes to, play with the tractor-

He just wants to do it all.

[Eli] Exactly. Exactly. So he's still growing. I think he's growing a handful of crops in Ely, which is like 10 miles down the road, but he spends a lot of time here and at farms working with our crops, which we really appreciate.

[Andy] What's your average number of employees you keep throughout the season?

[Eli] At the peak, when we have like both like greenhouse, and retail, and vegetable crew, maybe we have like, this year we have a lot of part-time people so maybe up to like 15, but then like when it kind of cuts back to mostly just the veggies and retail, it's more like, maybe like six or eight, depending again, we have a lot of part-time folks this year. So I would say like maybe like, six to eight, like full-time equivalents.

[Andy] Okay.

[Eli] Through most of the season and like a bit more in the spring. So a pretty good size crew.

[Andy] Yeah. That's a lot of people.

[Eli] It adds up, for sure. But it adds up both in like the amount we can get done, which is like staggering on like a good day when things are rolling.

[Andy] Yeah.

[Eli] And it also, you know, adds up definitely every two weeks for sure. And then also like then we, and then especially when we go and pay like the payroll taxes every few months, we're like, "Oh geez, what?" But, so this is kind of, this is our last greenhouse we haven't turned on yet. Number six will be the last one. We'll probably keep it as like a work greenhouse and maybe not a retail one. And we've been doing, we did a pop-up farmer's market in here last weekend and we're gonna do another one this weekend. We were doing that kind of all winter in number four and three, and that was really successful. It was a lot of fun. It was kind of, we had thought we were gonna be vending at the Norwich Farmer's Market, but they, it was gonna be at the Town Hall and the, the Town Hall canceled the market for, you know, for kind of COVID reasons. But it left all the vendors without a place to sell their food. So we chatted with a few of them and ended up offering up our greenhouses for farmers' markets. And we just kept the doors open and the heat on to get, for the ventilation and had everyone wear masks and they worked out really well. And then this last one, we were able, it's been warm enough we've been able to just like open the sides up all the way and kind of call it an open-air market.

[Andy] And whether it's rainy or not, it's covered space too.

[Eli] Exactly. Which is sweet you don't have that-

[Eli] Right.

[Andy] park or whatever.

[Eli] You got the condensation drips for sure. But, which, but some of the vendors with like the craft vendors with like more sensitive stuff, we like put up like a little tarp over them. So we've got our last, we've got two more like farmer's markets at the farm. We've got one this weekend that'll be like in that greenhouse. And then we might overflow and have a couple people in tents here. And then we usually set up our own booth in here and then also set up our farm stand. So that's this weekend. And then we're taking a week off to get ready for like opening day. And then we open the farm stand April 30th and then it's open every day through Halloween.

[Andy] Yeah.

[Eli] But it's only we keep it staffed just through July 4th. And then I think we staff it like two afternoons a week after that. And other than that, it's self-serve. This is where, we do our perennials, which are, this is like the nicest house to be in in the spring. I think it's definitely like the one that looks kind of the most complete. It's also the only one we don't have a double layer of plastic 'cause it doesn't really need to stay very warm. It's mostly, things just wanna stay above like 40 or 45.

[Andy] Are you putting double layer plastic on pretty much all the ones that you're going through at this point forward? You said you're re-skinning like a couple every couple years.

[Eli] Yep. Yes. So every year we do like one to three, this one we did last year and we didn't do double plastic, but everyone else we will.

[Andy] Yeah.

[Eli] They all have slightly different ventilation and heating systems and some of them have like end walls that you can pop out and some don't. I think this one looks like it is one panel that you can pop out, but we haven't. I think they.

[Andy] Like that whole end wall?

[Eli] Yeah. Like that square in it.

[Andy] Yeah.

[Eli] They're all, everyone is a little different. It's kind of cool. I got to see like kind of the progression of like Jake's brain over the years as he like, you know.

[Andy] He went to another conference, learned something new?

[Eli] Exactly.

[Andy] I'll do that on the next one.

Exactly. Yeah. So some of the stuff where like there's, you know, there's many things on the farm where I'm like, that is such a good idea. I wouldn't have thought of it. And there's some things where like three years in, I'm like, I still, I don't understand what problem this was I trying to solve, but I'm sure it was like something that made sense at the time.

[Andy] Yeah. This one's got the trolley track.

[Eli] Yep. We got, I think four with the trolley track, three or four.

[Andy] You use those a lot?

[Eli] We do in, where they're really helpful is when we're potting stuff up. And then someone is usually just like shuffling, like plug trays up, and like plant like planted trays down and kind, just.

[Andy] To get 'em outta here.

[Eli] Yeah, exactly. Yeah. And these ones are actually like this week, we're gonna move a lot of the perennials out 'cause they're getting like a little bit ahead of it, themselves.

[Andy] Yeah.

[Eli] But we have a team this year, we have someone who's kind of taken the lead on perennials who's been working with us for a few years and has a lot of experience and we've just kind of like, let him be in charge of it, asked him to manage it. And he's like, it's never looked this good. We've, we are usually the last few years have been typically like one to three months behind on planting.

[Andy] How do you like this heating system which looks like it's blowing down a tube?

[Eli] The, that is most of our heaters have the tubes and some of them we have not yet gotten around to cleaning and reinstalling the tubes. But I see the benefit. It's a little bit of a hassle. I probably wouldn't buy a heater with a tube at this point just based on that. The one thing I do like about it is that it does like protect this first row from that, you know, from, from heating.

[Eli] Right. So like in the next greenhouse over, we don't have a tube on it and then we've got like a board set up, but that-

Oh yeah.

[Eli] Does and I don't, maybe the tube is like being more efficient at spreading out the heat? I don't know. It's a pain to clean. I'll say that.

[Andy] Like, does it just get filled with dirt and dead bugs or?

[Eli] Yeah and like algae by the end of the season, you know, like a lot of water or like standing water stuff and like we have a lot of.

[Andy] It drips off the table and falls into the hole.

[Eli] Exactly. Yeah. So like, yeah, dirt and then like the things that grow in like dirt and water when they sit around, and fertilizer, you know?

[Andy] Yeah.

[Eli] And then we also have like extremely, we have very mineral rich water here. So there's a lot of calcium buildup and stuff, you know, some lime, the fun stuff. We have our pH in our water and our soil's about seven to 7.2. So we're... It works out, all right. I mean the veggies seem to like it. There's some, we do, in some of our fertilizer mixes we have acid, that we add to the watering, and that kinda balances it out. We have a million propane tanks and I've been told through my conversations with the many, many conversations with Irving, apparently in their system, our greenhouse, our, they call it, the cluster is when they're like, "Are you talking about the house or the cluster?" And they desperately want us to move to like a pipeline with bigger tanks, but they also have no interest in paying for it.

[Andy] Right.

[Eli] And it doesn't cost us more or less-

A couple tanks

[Eli] like it. Right. Like we don't own the tanks either way. It doesn't cost us anymore when poor Jessica has to drag the propane hose around like back-up to three different places on the farm. It does encourage us to maybe invest in some hard pack so that she, so, so she doesn't get stuck so often.

[Andy] Fair enough.

[Eli] But we made it, knock on wood, we made it through this whole mud season. I didn't have to pull the propane truck out of the mud, but I did have to pull like every other truck.

[Andy] How many, how often does that truck need to come?

[Eli] At least twice a week, through, yeah.

[Andy] Twice a week?

[Eli] Yeah. But like so, often. Okay. They come twice a week. They don't, sometimes we could definitely make it every week. But like we found with Irving, like they're the only way to get them reliably here is to like,

[Andy] Just have a schedule?

[Eli] And that takes like somehow like 10 back and forth phone conversations every spring. So I was telling about how like the, every spring Irving pretends like it's like this new idea that we need them to deliver twice a week.

[Andy] Oh.

[Eli] They're like, "I've never heard of that." This is our retail veggies. We got maybe like a little bit ahead of ourselves on the first rounds, but we just like wanted to like have things like super ready, if we, like some of these, about half of these trays that are like this first ready round are going to like the Lebanon Hanover Co-ops. That's tomorrow. So that'll clear out some, and we'll plant probably anything else that needs to, we'll plant in our field, but we have it kind of set up so that there's like three rounds of each plant. And then the next stuff that's germinating. It's like down at the end.

[Andy] Yeah, well.

[Eli] Our employee Jackie just made these bench cards for us this year.

[Andy] Ah.

[Eli] She just made, and then we have a ton more that we're gonna print out for all the flowers too, which is, we're trying to step up our signage game.

[Andy] Yeah.

[Eli] So these are the herbs we buy in as starts. I need to like go through and consolidate them a bit. And they're the ones we are gonna try to do a lot more of in wholesale over the next few years. So we get them in from, so these ones are certified organic. All the flowers we get in are not, but they do pretty well for us at the farmer's market. And also there's a lot of retail or wholesale demand for them. So we've got, and then we do like some onion starts and a lot of like dill and cilantro. And then in the next two weeks, we're gonna put plastic on this cold frame and move this whole side of like colder hardy herbs, move them all outside and then move all these herbs to the side and this middle bench will all fill up with tomato and pepper starts, which we've gotten the start of. That was like one afternoon of planting. And it's gonna end up being probably this whole center bench. This year we invested in a label printer, which has changed our lives, dramatically, but we invested in it like not before the season started so we have some back tagging to do. So then this house, we do our field veggies, which looks kind of empty right now because we just planted our, we just moved like a bunch of cabbage and kale out in the field, but it's gonna, it's about to fill up with, our peppers will end up being about like three to 400, 50 cell trays. So that'll fill up most of this greenhouse in the next two weeks and then we'll keep doing some rounds of cabbages and stuff. Yeah. But our main crops for the spring have been like cabbage, kale, peppers. And then we do some onions for wholesale and we do a lot of cucumbers mid-season. So we start the first round in the greenhouse and we just direct seed the rest so it doesn't really take much space. This is the other cistern, and my pump system that I just keep breaking, because I let a \$15 float valve fail or the \$15 float valve failed and I was like, "I don't have time to replace it. I'll just manually fill this." And then, and then I'd forget, and then they'd run dry. And now neither of these pumps work. Shoot.

[Andy] So that 1500, that \$15 float valve just cost you a bunch.

[Eli] It really did. So what we've done, but what's nice about all of these underground pipes is that there was already, there had been one that goes from number four to number eight that we had never used before, but we just had to like rearrange a little bit. And so now that system like eight, seven, and six, is back on, but we've been just bringing the hose, hauling the hose over here. So what I think I'm gonna do is just reconnect that system back into this one and skip the pump all together and let the water pressure figure itself out. Which I think that they built this whole system before they upgraded their, they've got like a, there's like an electric, constant pressure monitor control system that I think maybe would solve all of these problems without needing to have this on its own pump. I'm gonna kind of take a gamble on that because I don't have money to buy another one this spring.

[Andy] So what is the cost of a pump this size?

[Eli] These ones? I, the replacement is like seven to \$800, but I'm not convinced I need one that big, small things I'm doing as we re-skin the houses is like, I'm going away from like wooden hip boards or baseboards so it's all metal metal hip boards. And then in the, this one actually the baseboards were still

fine so I didn't replace them, but in a few houses over, the next one we'll do, I'm gonna do like poly baseboards and bury them a bit for the.

[Andy] Like the PVC boards?

[Eli] I think so. Or like the like was like the polycarbonate, like that's like the corrugated, clearer stuff.

[Andy] Oh yeah, yeah, yeah, yeah, yeah. Yep.

[Eli] But so then the next greenhouse over we have is, this is our cherry tomato house, which is in, currently in greens, which I need to harvest out that kale like this week and then flip it over and get some of that grass out of the side. But this one is like custom lift. It's got like a custom lift kit on it.

[Andy] Oh, yeah.

[Eli] Be taller, which is handy for the cherry tomatoes.

[Andy] It looks ridiculously tall.

[Eli] It's pretty tall. Yeah.

[Andy] For how wide it is.

[Eli] Exactly. I know. I'm like, "Why don't you just make a wider one?" Next house over, this is one we're re-skinning this this year. There's like no functional, there's like not a baseboard, really, over here anymore, which is why we've got like multiple kind of like insulation curtains going on.

[Andy] Oh.

[Eli] But it is the only one with a functional top vent motor.

[Andy] Okay. Yep.

[Eli] We also, we added in these fans on both houses, like the vents and fans on both houses last year, which I'm not really sure how we got by for like two years without any fans. And I really don't understand how they got by for like however many decades before that, but they're making a big difference already.

[Andy] So they were basically passive?

[Eli] Right. Yeah. Like, well they had heaters.

[Andy] Okay. Yeah.

[Eli] But they didn't have any, and this one had the top vent, but besides that they didn't have any like forced ventilation.

[Andy] Well, geez.

[Eli] I meant they had circulation fans, but yeah, that really is surprising. So we got our first tomatoes in here, so we just added, so we added this vent and fan just this last year. And we just put these tomatoes in the other day and we have a little bit of cucumbers. I was gonna pot up more cucumbers, but I just I'm so behind on making soil for our like seeded stuff that I think I'm just gonna plant the rest of these tomatoes instead, since I have them. The soil in here is, I've been, I've been told to not put any manure or compost down in the soil for probably as long as I live, which goes against kind of my instincts when I'm planting a tomato.

[Andy] Due to phosphorous concerns or salt or what's, what's your main reason behind that?

[Eli] I know all of the above because this soil tests are like every, like every category is like excessive! Excessive! I think there was a lot of manure and like manure-based compost applied to it over the years kind of just like year on, year on, year. And so we have amazing like 11% organic matter in here.

[Andy] Wow.

[Eli] Which is great and very happy plants every year, but also a bit of a, yeah, a bit of a backlog of like phosphorus, sulfur, you know, that stuff. I would, in theory, like to, I'm hoping I can time it right when we re-skin it this fall to like let it, you know, get, let some rain like, leave it open for a few weeks, but it's hard with all this like, heaters and stuff.

[Andy] Right.

[Eli] And this I do, there is, in theory, there is underground piping for hot water, but I don't know that it was drained before. It was like, I don't know the condition. And so I'm like, haven't taken the time to try to get it up and running. 'cause I, 'cause of the very real possibility that'll just start flooding the ground.

[Andy] Oh there's the wet spot!

[Eli] Exactly. Exactly. Yeah. But I would like to, in theory, it'd be great to get this going again and have radiant heat in here.

[Andy] Especially for a tomato house.

[Eli] Exactly. Yeah. And they must be pretty deep 'cause Jake would always till this with his tractor so that those, the whole back end does pop off, but it's pain to get back on. And my tractor is just like two inches taller than whatever Jake was using for this and it cannot actually fit in.

[Andy] That's a bummer.

[Eli] But I can hire him to do it if I really want to. But honestly we just do a walk behind tiller right in the beds. And that tends to work.

[Andy] I know you've only been here a couple years, but so you're keeping the beds in the same spot? You're not like changing up your row spacing?

[Eli] I have been keeping the beds in the same spot because they're lined up with the overhead wires. And I'm curious, like I know, I know some farmers that are, you know, have enough houses that they're doing, they're rotating the tomatoes through houses. And I know other farmers that are doing tomatoes in the same houses, you know, for like their entire career.

[Andy] Right.

[Eli] And I'm, you know, on every other occasion I would rotate the crops, but I haven't figured out a way to not need this space for tomatoes. We will plant some basil along the side, kinda have a companion crop. And usually the last few years we've done marigolds at the end and that's been, I think that's been helping for pollinators and stuff. We'll get a bee box also.

[Andy] Yeah.

[Eli] So right now we get our compost in on sling bags, which is not the cheapest way to do it, but we don't have a place to dump it. And I think, you know.

[Andy] If you got a truckload?

[Eli] Right. And I think we could get creative with like, we've got tons of scrap greenhouse plastic and stuff. But what we, what's more kind of lacking is, you can kind of tell is like, solid road for a truck to get on in the mud season. This is like the best it's been since February and it's still a little sloppy.

[Andy] Yeah. You could use a few truckloads of gravel.

[Eli] Right. Right. Exactly. And to be honest, I have like one truckload of gravel and I have a grader blade on the tractor. But I think that if I, I think that we would need to go to like hard pack, like, and actually like kind of get in a professional otherwise we're just gonna be like plowing the gravel.

[Andy] He can put down some fabric with the gravel on top.

[Eli] Yeah, exactly. 'Cause otherwise we're just gonna be plowing the gravel like to the end, like, you know, for every winter. So this is our, I'm gonna say project greenhouse. It is currently full of stuff.

[Andy] Wow.

[Eli] It needs some love.

[Andy] Every farm has a greenhouse like this.

[Eli] It's like, this is the biggest greenhouse we have. So it feels terrible to not be growing in it, but it also is a project and an expense to get it growing-able. It needs some electric upgrades. I mean, not more than all the other houses. So probably did.

[Andy] Did you inherit it in this state or did it just become a nice covered space to pile your projects?

[Eli] We inherited it with less stuff in it, but a lot of stuff in the barn, which has migrated to here.

[Andy] Okay.

[Eli] And it was not in a place like they hadn't been growing it in a few years. So it's, I think what we would need, we're hoping to re-skin it this fall if we can get the funding together. What we'd really love to do is turn this into our prop house, into our like number one first prop house and build a, like a, off the back end, build like a potting shed off the back end that would have the soil mixer. And then we would fill all the trays there and maybe even do a lot of the, and probably do like most of the seeding there, and probably a lot of the potting up and then move those trays. But, and then maybe build kind of like across from there would probably be a place to put in like a kind of build up a concrete area to put in the soil for the-

[Andy] Oh,

[Eli] the deliveries.

[Andy] Yeah. Yep.

[Eli] But again, it's a project.

[Andy] Yeah.

[Eli] It's on the list. So for right now this is serving as like covered space. I think that our goal for this year is just to get it re-skinned and like able to like turn it on and grow in it even if, you know, the potting shed in the back is like that's for a couple more years.

[Andy] Right. Right.

[Eli] But I think we're seeing that there's enough retail, enough wholesale demand for like the urban veggie starts that we, if we opened up more space, I think we could fill it in-

[Andy] For sure.

[Eli] and sell out of it. And then it would give us kind of an opportunity because there's not already like so much set up in here, it would give us an opportunity to like set the benches up kind of like more in this direction like we'd like to, and like, I want to do, I'd love to do a series of benches with like radiant heat on the bench tops.

[Andy] Right.

[Eli] Which may or may not happen this year or like when we first start this, but it gives us a little bit more to play around with just being a bigger house and having, not being already set up.

[Andy] Yeah. Yeah, there's benefits to that too. It's a blank slate,

[Eli] Right.

[Andy] Essentially it's a shell, you fill in your watering and everything how you want.

[Eli] We do have to figure out where to put all this stuff that came out of the barn. Some of this, we've had, like, it's our soil, supplies and all that stuff-

[Andy] Yeah.

[Eli] and row cover mess. But then we've got like several of these, like pallets of just like, this is just stuff that was in the barn that I've been like, "There's probably too much value in there to just throw it out."

[Andy] Right.

[Eli] But there's also a lot of labor in there to sort through it and figure out- what all, anything is. There's a few crates that I'm like I've successfully like saved myself a trip to the hardware store by finding, hose parts and like irrigation parts in it.

[Andy] Yeah. It's real, you know, having piles of plumbing fittings is helpful.

[Eli] Right.

[Andy] If you can find it.

[Eli] Exactly.

[Andy] But if you spend an hour finding that \$6 part, then that wasn't worth it.

[Eli] Exactly. So it's kind of, I'm trying to find the balance. We have very aggressively tossed a lot of stuff, but then we've also, there's other things where I'm like, "I really know that's useful in some capacity. I gotta keep it and figure it out."

[Andy] Yeah.

[Eli] Yeah. And I've got a mountain of weed mat, that'll go back out onto peppers, and some-

[Andy] Between rows or you planting your peppers right into that?

[Eli] We do plastic, black plastic mulch for the rows and then the weed mat in between.

[Andy] Okay. Yep.

[Eli] And then same with the cucumbers; we do that as well. That's been working pretty well for us, especially after the first round we do, like we just direct seed it like that. So you like lay the plastic, lay the weed mat, direct seed, lay the row cover, and then like come back in a month, and that's been, that works pretty well for us. This is where I wanna bulldoze everything and turn it all to hard pack and then maybe put like a pole, pull arm back there. We don't really have any like tractor shed storage or anything. We have like kind of an awkward equipment line that I feel like we could improve. And part of my motivation for having you out here is to try to pick your brain for like, what can we do? How can we improve this? All of this I realize is very changeable. And I just like, haven't had any time to like, do anything beyond like emergency response basically-

Yeah well you've to anything we got here-

but you've got here

[Andy] and immediately needed to start selling things. So-

[Eli] Exactly.

[Andy] your time, to kind of clean up and get established is hard to find.

[Andy] It really is. Yeah. We're working on it.

[Andy] I hope you're enjoying these farm tour style podcasts. I really enjoy recording them. If you want to check out Honey Field Farm, you can visit their website at honeyfieldfarmvt.com or their [@honeyfieldfarm](https://www.instagram.com/honeyfieldfarm) on Instagram. If you wanna learn how Eli and Valerie were able to build this farm business, then tune in next week as Eli shares, how they were able to buy the farm and get their business started. Thanks for listening to today's episode. I hope you enjoyed it. If I can ask you or direct you to do one thing that is to go to the website for this podcast, [ag ENG podcast.com](http://agENGpodcast.com), that's [A G E N G P O D C A S T.com](http://AGENGPODCAST.com). There you'll find the show notes. You'll find links to the farmer who we chatted with today, as well as photos or videos from the call when I visited the farm. If you've got some feedback to share my contact information's on there, or you can leave me a voicemail and you can do that right from the link in the description in the mobile app you're listening to this to, so go ahead and do that. Thanks again for listening. And I hope you have a great day.