

Transforming Plastic Waste: Innovative Solutions for Sustainable Agriculture with Kevin DeWhitt

[00:00:00] Nataliya Shcherbatyuk:

Hello and welcome to the Mulch Matters Podcast where we will explore the intriguing world of mulch and its impact on agriculture and the environment, as well as update you on the latest research about soil-biodegradable mulch and recycling options for plastic mulch. I am your host, Dr. Nataliya Shcherbatyuk, and I am a communications specialist for the project, "Improving end-of-life management of plastic mulch in strawberry system". In each episode, we'll dive into the latest research, trends, news, and insights on why mulch matters and how we can improve plastic mulch end-of-life options. We'll also branch out and discuss other plastics as well as talk to researchers, experts, and practitioners in the field who will share their insights and experiences on how to use mulch effectively in different settings.

[00:01:11] Nataliya Shcherbatyuk:

Hello and welcome back. Today we will talk to Kevin DeWitt, who is the founder of PDO Technology. So, let's hear from Kevin. Hi Kevin, how are you today?

[00:01:21] Kevin DeWhitt:

I'm fine, Nataliya. Thanks for having me on your podcast.

[00:01:25] Nataliya Shcherbatyuk:

Kevin, can we jump in straight to your background and what is your role in our project? And I mean, our end-of-life management of plastic mulch projects.

[00:01:37] Kevin DeWhitt:

Right. Yeah. So, uh, brief background. I've actually been, uh, exposed or involved with the pyrolysis of plastics, which is the breaking down of plastics for about 24 years. Started in 2000. I'm an analytical chemist and physicist by sort of training. When about the, uh, the technology in 2000 back then we were trying to take waste plastic and turn it into diesel, which was very appealing to a lot of people.

So, it's been a lot of years since those efforts and, uh, I've been in the space all the 24 years until now, and nowadays the shift, there's been a shift in the focus from taking plastic and making fuel products to taking plastic and making more plastics from it. So, my background is pretty varied. I started a company in 2004 called Plastic Fuel, and we got quite a bit of investment, um, in that company starting in about 2006.

By the time I left the company in 2014, the company's name was Agilex. After I left, the company actually went public on the Norwegian stock exchange of all places. So, one of the original [00:03:00] investors was a Norwegian company. So that's why they went to a Norwegian stock exchange. In any event. You know, the company still exists.

Um, they have spun off a daughter company called Cyclics, uh, in Texas and does a very good job with trying to collect plastic, right? So, they're more of a collector and a waste management company than a technology company. When I started Plastifuel, Agilex, you know, pick your name, the, we were a technology company and PDO, uh, which I started in 2014 as a technology company, the role that our technology plays in Washington state's end of life, you know, mulch management, uh, grant is one of three pathways in working group two, uh, you know, led by Dr. Karl England and we're the pyrolysis pathway. So, there's an asphalt, uh, additive pathway, a pyrolysis pathway, and then a, you know, plastic into physical products pathway, which Karl and his team are pursuing. So, there's three different pathways for end of life mulch film, and I'm the one that takes probably the dirtiest and most, um, unattractive plastic in, in the, off the farms.

And we don't care about the dirt, our technology doesn't anyway, and so we can make a very useful product. Uh, in spite of all the, uh, you know, there's a line on plastic coming out of a berry field.

[00:04:37] Nataliya Shcherbatyuk:

That's interesting. And talking about PDO technology, can you tell us what led you to create it and a little bit about what's its mission and vision?

[00:04:48] Kevin DeWhitt:

Sure. So, when I, when I got exposed to the technology way back in 2000, they were trying to make diesel. Just from a scientific perspective, that's pretty interesting and pretty appealing that you can take a waste material and then repurpose it into something that everybody knows is useful, right? Diesel fuel powers trucks and tractors and everything else. that was very interesting. I started, you know, plastic fuel, then Agilex with, you know, a mission and vision, which was to be a technology company that provided technology anywhere in the world to attack plastic anywhere in the world. So we weren't approaching the problem from a big, you know, A centralized facility that gobbled up waste plastic.

We approached it from a, from the perspective of garbage is made everywhere, which means waste plastic is sort of thrown away everywhere and we, and that's called a distributed bottle, right? It's a distributed problem. You and I each make receptacles. Or a recycling bin. So, waste and recycling are distributed in nature.

So, you need a distributed solution or distributed technology in order to solve a distributed problem. And so, for us, the core of Agilex and still PDO is small scale technologies if they're placed very

nearby where the waste is already sort of being made. maybe not right on site, but you know, within a few miles of, of, uh, like an urban center or a very polluted river or something, then you can attack the waste problem and not transport the waste very far away before you can deal with it.

So that was the, that was the premise. And it turned out to be one that the investors, um, back in the 2006 through 2012, really, Thought was the best approach. Um, our investors now and our stakeholders at PDOs think the same thing that you need to attack a distributed or decentralized, um, problem with that same type of a technology approach.

And so we took PDO and I, and I produced PDO after leaving Agilex to really continue to try to serve. The developing nations and the places where waste management is such a problem that, and because they have no infrastructure, all of their waste, especially the plastic part of their waste, that's what finds its way into the rivers and then the oceans and into those garbage patch gyres, which people talk about, right?

The Great Garbage Patch, the Pacific Gyre, so we thought if you can attack it at the, right before it gets to the river, then you can probably solve a lot of the plastic flowing into the river and then into the ocean and into the gyre. So, we're trying to work backwards and attack the problem where it starts, not where it ends.

The core mission of PDO is to provide technologies that. scale that that size up or down to address any problem, large or small for plastics, um, across the globe, right across the world. You know, the vision that we have that's now probably more achievable than it was even 10 years ago. is to see all waste plastic have a home outside of landfilling.

Landfilling of plastic is the easiest thing to do, which means it's the cheapest thing to do.

[00:08:31] Nataliya Shcherbatyuk:

Right.

[00:08:31] Kevin DeWhitt:

But it's also the worst thing to do. If we can repurpose and re, you know, sort of, um, recast all that waste plastic into something different, then you have the best possible approach. And it's one that people now call a circular approach.

Yeah. Well, maybe it's worse. Linear waste. So, we're really in a circular model now. Everybody is across the world and our technologies, we think, and our vision is to make sure that 100 percent of the plastics get into the circular pathway and not the linear pathway. Hopefully, that makes sense.

[00:09:11] Nataliya Shcherbatyuk:

Oh, yeah. Yeah, that's great. And you said that you're working backwards, but I think it's more that you're working as a preventative measure. You know, you're trying to clean it before it actually gets dirty. Right.

[00:09:23] Kevin DeWhitt:

And that's an excellent perspective, Natalia. We, we try to be, yeah, that just, that's just an excellent point. We're trying to head it off before it actually gets to be a problem.

[00:09:34] Nataliya Shcherbatyuk:

Mhm. Yeah. And talking about your products, um, can you tell how different they are compared to those that's already on the market?

[00:09:46] Kevin DeWhitt:

Sure. Are the entire sort of, um, so the space that I work in, the technology I provide is called advanced recycling. It's actually called several different things. But because it's so new, people use a lot of different terms, most people are now centering on advanced recycling, which used to be called chemical recycling, sometimes molecular recycling, but advanced recycling is. The thermal process or a process by which you can take plastic and get it back to plastic So there's that that's the definition our products are our technologies is different from most others in that We try to go as small as possible and most everybody else tries to go as big as possible So a lot of our competitors are trying to process between 100 and 400 tons of plastic per day You at a central facility what they're all finding. And what we've been telling people, we've made, we've been very, um, transparent about it. It's very difficult to collect 100 to 400 tons of plastic, not garbage plastic, and get it to a central facility every single day of every single year. That's very difficult logistically. If, on the other hand, you say we're going to go out and put a solution in that's collects 10 tons or 20 tons of plastic per day.

That sounds like a lot, but it's actually very manageable. A city of 20, people will generate that much waste plastic every day. And if you work with a community or a city, a small city, or even a large city, but, you know, neighborhoods, then within the city, however, those are sort of bifurcated, then you can start to work with the people that are very much close to.

The waste management problem. And when you do that, you can help collaborate with them to say, how can we best get the plastic portion of this redirected just to the other side of that fence so that we now say it's separated well enough that we can now take it apart from the garbage and the metal and the glass and all those things.

And we can actually then repurpose it through our technology. Um, I'll give you an example. Um, uh, my colleague and I were at Intel. Uh, in Hillsborough, which is the chip manufacturer last, last week,

and we were at their Rommler Acres facility, which is a, um, I think their main research and development facility.

It's a huge, you know, campus and they make a lot of waste materials, not just plastics with other things. And we were working with the group there that's responsible for their solid waste and we said, we think there are methods to change just behaviors a little bit. And capture 90 percent of the plastic that you, that you meaning Intel produces versus throwing it into a dumpster or throwing it into a drop box.

The words mingled, you know, Mixed up with wood and other things we did change behavior enough to get that plastic separated, we can take it off site, guarantee to Intel that it will be recycled and never landfilled. That would be a real, um, great message for Intel to be able to tell it's, you know, Stakeholders, you know, and its employees and everybody else that, hey, we 100 percent of our plastic gets recycled. Neverland. It's a big deal for companies that are, you know, big companies that generate a lot of waste. It's things like that, that help us to sort of differentiate from others is the size and the ability to work very, very locally with our, our, um, you know, our waste, uh, Providers. Hopefully that makes sense.

[00:13:40] Nataliya Shcherbatyuk:

Yes. Yes. And you actually spoke about separation and that's When you start talking about collecting tons of plastic per day, I was thinking well, what about separation, but You actually answer my question that I had in my mind and I think the separation is quite important and also time consuming So if if there is the way how that can be like you say logistically done at the beginning it Much easier for you than just to collect what I would say sort of clean quote unquote plastic for continuing work with that specific plastic and are there any Innovations or technological advancements that recently you've done and you're excited about and you want to share about?

[00:14:27] Kevin DeWhitt:

So, our technology is um, we started with a first generation technology, which was really the the fifth generation technology from my old company agilix Uh, I was, um, economical enough to, uh, acquire some Agilix project assets, um, when one of their projects, uh, auctioned them off. So I, we acquired those, we changed them, we modified them, we simplified them. And so, we had those in house, uh, here where I work, uh, at AgriPlast. I co locate with an agricultura plastics recycler the end of the day, AgriPlast does a very good job of collecting plastic. I do a good job of converting that plastic waste into a usable material. So, when you put the two together, I don't have to solve his problems and he doesn't have to solve my problems. We're both solving all the problems together. So that's really good. So that's actually not an innovation, but it's a strategy that we hope more people in our space will follow. Is to partner with people that who already know how to get waste plastic because technology companies typically do technology, they don't do collection, right?

So, there's that So that's an innovation. The second innovation we've made, um, is to take our first design, which was my old company's design, which I had invented. So it was my design anyway. But, um, the, uh, and we took that, and we looked at it and we did some really hard, um, critiquing of how it worked and decided to almost literally Turn our technology sideways.

If you can imagine that and then turn it like a cement mixer. And we said, if we did those two things. Um, did the rotational part slow rotation like a cement mixer and we turned it sideways, we would gain a lot more advantages than we would disadvantages. And so, our next generation of technology will look like a very simple cement mixer, which is called a rotary drum reactor. Um, that's what engineers call it, and it will give us quite a few advantages over our current design. So, we're very excited about that. That's coming online. Probably by uh, quarter three of next year.

[00:16:54] Nataliya Shcherbatyuk:

Oh, that's that's definitely something we need to keep an eye on Yeah, and and I really uh appreciate you mentioned the first um Innovation which like you say, it's not really innovation, but it's quite important and I would title it, you know Uh collaboration instead of competition.

[00:17:15] Kevin DeWhitt:

Yeah, it's a great point. Uh, Nataliya that Collaboration, especially with people that Are experts in their own field. I don't need to be an expert in waste plastic collection because I know what he has taught me a lot over the last five years expert because he does it every day. I just do it every day. And so, I could probably copy it but it would be, you know, I still wouldn't know some of the things that he just knows, you know, intuitively I still would I would have to learn my own make my own mistakes.

[00:17:50] Nataliya Shcherbatyuk:

Right. Yeah. So that's a great

[00:17:52] Kevin DeWhitt:

Collaborative because everybody is, you know, brings their own expertise. And that's one of the reasons why, you know, working with Washington State in this, in this group, um, under this grant is, has been very valuable to, to me personally, and to PDO corporately is because there's just a lot of ideas. That we, we know nothing about and other people are bringing that we can learn from and then say, you know, took that idea and maybe turned it sideways and then reversed it. It would work really well for what we're trying to do. Uh, and you know, you wouldn't think that way unless somebody else had an idea that your brain said, turn sideways, reverse it, and then it'll work for you. Right. So, all those brains working together is a lot more powerful than just a part.

[00:18:38] Nataliya Shcherbatyuk:

Absolutely. It's yeah. Together. It's always better. Yeah. That's Pieces. Yeah. And you brought Washington State University and that's, you know, where our project is basically originated from. So, I wanted to switch our conversation a little bit about actual project, which is really circulated around mulch, plastic mulch. And I wanted to ask you how video technology. incorporate small solution in the production.

[00:19:11] Kevin DeWhitt:

So that's still a work in progress. That's why we're, we're part of the grant. Um, what we've been able to do some mulch, uh, polyethylene mulch films. Again, great for the growing really hard to dispose of over the past year and a half being a part of the team in this in this grant has been fabulous because I've been exposed to a lot of people working on parts of the solution. One of the things that we know about multiple is they come off the field every year. Uh, they're dirty. They're typically ripped. They've got probably mixed with drip tape that's wound together with them because you have to have both those things in order to grow strawberries, for example. So, there's all these challenges and we look at our system as a garbage disposal where we don't care about the dirt.

We don't care about the strawberries. We biomass. None of those tramp materials concerns our technology or technology says we're going to heat it all up and we're going to vaporize the plastic and we're going to collect those vapors and everything else just goes to a dust, really called a char in our system. And those are separate. right? The char stays beh and the plastic vapors fl So we already know that r with films like mulch fil and wet and have all those we already had an advantage over other technologies. Um, so for us, we look at mulch films and say, how do we work together with everybody on the team?

And maybe some people that are not on the team and get those molds that mulch film pulled off of things. 1,000 acres. How do we do that simply and cheaply and mostly effectively, right? Mulch homes are pretty good. They don't, they come off pretty well. Um, I think Andros, Ben Andros and, and Flipping Iron already have already sort of demonstrated that. But what do you do when they're off the field? At that point, you've got a big wall and and that's where we come in because we can say we take the next step and say if we collect those roles and we do the bare minimum, whatever that means. that makes those roles work in our system. Then if that bare minimum costs a dollar a pound, it's not worth it. We don't have a solution. If that bare minimum costs 10 cents a pound, maybe we have a solution. Maybe we put the 10 cent per pound solution in, we turn them into oil. That oil goes back and they're making more plastic. So, for us, it's all about how much work, meaning how much money do we have to to get that role in our machine.

And it's just, it's point A, the role, point B, the machine. How much money does it cost to go from A to B? And we're working on that with Working Group 2. We're working on that with Andros Engineering

and Flipping Iron. We're working on that with Lisa and Marcus and the rest of the team. And we're saying, what can we do to help the farmers prepare to get that plastic off the fields well enough so that it can be cheap enough for us to put in our machine? And it's very collaborative. It starts with the farmer and his people. It ends with us throwing that, probably not the rule, but you know, the chopped-up rule into our machine. And as long as it can be done economically, we can take every single role that's made and put it in our machine, which we're very excited about.

[00:23:00] Nataliya Shcherbatyuk:

Yeah, that's, that's quite interesting. And, you know, you, um, talking about that it starts with the farmers, which I really, really agree, because, you know, if farmer, if farmers are not interested in what we do, there's no point to do what we do, you know. It's all with them and for them. So, I wanted to ask you, how do you actually engage with farmers or other stakeholders just to, you know, to, to listen to them and to understand what needs and what challenges they face and how you can help basically to hear their feedback?

[00:23:37] Kevin DeWhitt:

Sure. So, we work with, uh, people that interact directly with farmers. Washington State's program, we work with Oregon State, which is very near where I, um, live, and they work with farmers through their farm extension, um, you know, service. So, there's Universities have a really great relationship with the community, the farming community, again, rural universities like Washington State, Oregon State, um, and so we partner with those, uh, people. AgriPlast is run by a farmer. He was a farmer before he was a plastic recycler, and so he, we already know how he thinks and why he thinks the way he does, and so for us, we're not, we're not such a technology that's so advanced that, you know, a farmer will never understand it. What we tell the farmer is, listen, we would love to work with you.

Let's get some of the plastic off your field and let's just put it in our machine down in Salem, Oregon, and let's run it and let's see what we get. And if I'm excited by that result and you're excited by that result, let's figure out a way in which we can then get your entire farm. And all the plastic and get into this machine and maybe what we make gets back to you, um, as a useful product.

As it turns out, we're working with, um, Oregon State and the onion growers in, uh, eastern Oregon, uh, where they get, uh, to be near, uh, the Washington State and Idaho borders. There's a lot of onion grows and that's, there's a lot of drip tape and actually some, uh, some other plastic products that they use.

Well, great. It's all waste plastic. They're very, very interested in saying, can we turn that plastic into diesel? Because diesel can go into our tractors, and we can farm more acres with the waste from our farm. That's a really cool story. That's a really great story. And we said, it's possible to do that. Let's start out by doing some trials. And so we, we start with trials and then we sort of work up to a, A pilot

plant, which we're not quite there yet, but we're going to put a pilot plant in. Eastern Oregon probably next year. Very small. Not very, um, not going all the time. Not a 24 7 manufacturing operation.

Just, let's just try it out. See if we can make some product that works in your tractor. Which we know we can because we've done that. They don't know the way. So they'll have to see it. But when you do that, what happens in Italia is that So everybody's interests are aligned in the same direction, meaning the farmer doesn't want to bury his waste.

He doesn't want to pay a fortune to waste management to come with a big truck and take it away. It's a large amount of fluffy waste films and flexibles and tubing and, you know, rigid containers and it's all like a mish. And so he wants to get rid of it responsibly and continue farming. Not have to pay a lot in order to do all that.

So, we wants to Mm-Hmm. Do the right thing. Right thing at a million dollars a pop, right?

We come along and say, we can help you do the right thing. We can make this a community or a co-op effort so that all the farm in the area is doing this together. And farmers love the cooperative model.

So, let's take the model you love, add to it. Get all you guys to help understand what's going on. And then at some point you can do it yourself. We'll just sit back and say, you guys can run the machine now, and make your diesel now, and do the things you need to do to put it into your tractor. And now you're your own waste solution, and your own fuel provider, in a small way, not in a big way, but in a small way.

And all of a sudden, the farmer owns and is responsible for the local environment, the local fuel usage, the local, you know, everything, the jobs that may be created. And it's all of that then problem has been localized. It has, and they can solve it locally. And then when they do that, they always own the solution, right?

They, they, they're proud of the fact that they're doing the right thing with their equipment to, to make things great. And when you get people to that point. They don't want to stop doing that. They want to be good stewards and responsible stewards, and farmers are, uh, but they continue to need, they're continuing then to be feeding, you know, they're feeding the planet, they're feeding the region, and they're being environmentally responsible all at the same time. They're saving on fuel. You know, what could be better for them? So it's just a process to get them there.

[00:28:26] Nataliya Shcherbatyuk:

Well, you're going in the right direction, that's for sure. Well, we hope so. Um, well, speaking about all of these good, very, you know, impactful pieces for our environment, it's, it's great. And I wanted to ask you, are there any, or what are the biggest challenges that you do face? Because there is always a challenge. And how do video technology overcome them?

[00:28:56] Kevin DeWhitt:

So the biggest challenges we face right now are, um, really human, uh, behavior, uh, challenges. The technology is, works well enough. Um, it can probably break even economically or actually be a small profit maker most of the time, if not all the time, right? And you must, you have to keep your eye on those pieces. The real challenge is if you want to change someone's behavior, uh, just a little bit how they go with their ways, then that, because it's a behavior, you have to say, please change it. Well, why? It's I already think about I have an oil bottle. I poured the oil into the tractor I've not oiled the tractor. I throw the jug in my garbage can that's a simple behavior. I've done it for years Gosh, would you put the cap back on the oil jug and then put that oil jug in a different bin?

[00:30:04] Nataliya Shcherbatyuk:

Yeah.

[00:30:05] Kevin DeWhitt:

That will Then we'll eventually we'll do all the fancy things and turn it into diesel and then it all will, if you can change that one behavior in every single farmer and, and every single farmer and their farmhands, right, they do all the work. That's hard to do. Um, they know that it should be done, and they want to do it. So, you have to set up the right systems and you have to make sure the behavioral change is small If you make this giant system where you have to do all this extra work, they're not going to do it. I wouldn't, they're not.

[00:30:41] Nataliya Shcherbatyuk:

One step at the time.

[00:30:42] Kevin DeWhitt:

One step at a time. Very simple do the littlest amount possible for the return that makes sense and that happens on the farms. It can happen in the stores It can happen in industry, Intel, for example, all those places where you have to say, just change a little bit. We're not going to disrupt you. We're just asking you to modify, right? Two cups of coffee a day, not four. Can you change that behavior? Some people can. Some people say, you know what, if that helps the planet, I'll actually drink two cups of coffee, not four.

They crucially don't have to buy into that change. And you have to sell them on that and incentivize them and otherwise get them to just do it. Just try it out. If you can do all those things, Natalia, people will say, if it's for the right reasons and it's going to help everybody, including my kids and my kids as kids and all those things. And the environment. I will really work hard to do it. And that's all you can ask of people is to work hard to do it. They're not going to be perfect. I'm not perfect. I still throw away the occasional plastic container and go probably could have used that in my own technology. And now it's gone to the garbage can.

That probably wasn't safe, you know, but I just forgot. Um, so you can't do everything 100 percent perfect all the time, but we're not asking for that. We're asking to just yeah. Just do enough to make a difference and hopefully that'll

[00:32:11] Nataliya Shcherbatyuk:

Exactly yeah, well, and you know to do stuff in 100 percent all the time It's...it's a perfectionism which actually kills the work because yeah, perfection is the

[00:32:24] Kevin DeWhitt:

Moral enemy of good enough.

[00:32:27] Nataliya Shcherbatyuk:

Exactly. Yeah. And it's a good, it's a good thing you're talking about. It's another preventative action that we, we all can do. It's not only about the farmer who is doing, you know, job on the farm. It's also us as a household and all the plastics that we are using in the house. Exactly. Right. Exactly. Yeah. Yeah. Now you got me thinking where did I throw my plastic bottle last time? Most of

[00:32:57] Kevin DeWhitt:

The time I bring all of my household plastic waste to my job site where we convert it into our product, which then goes back into more plastic. So, I'm usually pretty good, but on occasion I, I, uh, I throw a cat food, uh, bowl or something. You know, the wrong container, and sometimes I don't even remember that I did that, but sometimes I catch myself, you know, we're all trying to be the best we can be, and that's all we can ask of ourselves.

[00:33:24] Nataliya Shcherbatyuk:

Yeah, and sometimes trying a little bit is better than not trying at all, you know, it starts from small, it always starts from the small pieces.

[00:33:34] Kevin DeWhitt:

Exactly. And, you know,

[00:33:39] Nataliya Shcherbatyuk:

Exactly. Yeah. I mean, you can see the destination as the person who's working on this process, but for us, normal human being walking with the plastic bottles, it's a journey. It's one step at the time, one bottle at the time.

[00:33:54] Kevin DeWhitt:

One bottle at a time, right? Yeah.

[00:33:56] Nataliya Shcherbatyuk:

Yeah. And let's look a little bit ahead of us. Sure. Where do you actually see sustainable agriculture and recycling of those, you know, well, we hear unrecyclable or non recyclable products. Where do you see it's going in the next few years?

[00:34:17] Kevin DeWhitt:

Uh, so at the conferences I've attended, um, and these are usually Powered by or driven by, you know, the biggest, uh, oil and gas and petrochemical companies on the planet.

So really, really hundreds of billions of dollars per year types of companies. And it's been very exciting over the last three years, since about 2021 is when I learned about this, that All of these companies that make plastics, and I'm talking about 100 percent of the people that make plastics, which is again all the petrochemical folks, and there's like dozens and dozens of them, all of them have collectively said, in the next 20 years, so by 2045, roughly, we all are driving To make sure that there is a pathway for 100 percent of the plastic that's produced to be a pathway for it to be somehow recycled.

All right, then 10 years after that, by 2055, 100 percent of the plastic that is produced. is actually recycled and not one-pound hits the landfill ever again. So that's 30 years out. That's three decades. I will likely not be around in three decades. You will and my kids will, my grandkids will. So, I'm excited to actually be a part of that first part of the journey where we say in the next 10 years, We think we can get to the point where our technology has proven to be a good model that can be put everywhere, not in your house like a trash can, but right, but but at the local recycling center.

So, we say, even in small towns where there's farms and co ops, even in big towns where there's, you know, bottle drops for recycling bottles. We can put in the infrastructure necessary to allow for whatever size of town or population you have, and people are now bringing their plastic to that location by itself, not mixed with paper, not mixed with metal, all those things, right?

So that's a that's a change of behavior over the next five or 10 years. If that can happen, we can get very, very close to having a pathway in the next two decades for all of the waste. Now, it'll take 20 years to get a pathway in place, but even at the end of 20 years, we won't be perfect at it yet.

That'll take another 10 years. And even at the end of 30 years, you'll still have a few pounds of plastic entering a landfill. Let's be honest. But you won't have 55 billion pounds of plastic entering the landfill in this country every year and growing 5 percent a year. That will not happen anymore. And it will go down to, heck, if it was a few million pounds, but not 55 billion, that would be probably close to zeros we'd ever get.

That's coming. It's just going to take time to get all those behaviors and systems in place. To give people like us at the household level, people like us at the workplace level, and people like farmers at

the industrial level, all have the system and the practices in place to do the right thing. And when we put a dog on it, they'll be a lot better than they are now, and that we are now as a population, right? So that's coming, and I'm very excited to be on sort of the leading edge of it, if you will.

[00:38:03] Nataliya Shcherbatyuk:

Yeah, well, with all the technology, you know, that's even now, it's existing, I don't see how that would not be able to happen. It's really, it is coming, and it's probably even possible to be there sooner than 30 years from now. I hope so. I hope so. Yeah, we'll see. What has been the most rewarding aspect of your journey with video technology?

And, you know, when you talk, I can, I can, I can hear it in your voice and I can see you really like what you do. It's, you know, it's sparkling. Can you share with our audience what, what is something that you, you know, wake up in the morning and excited to do every day?

[00:38:49] Kevin DeWhitt:

Sure. The, um, so I've been a part of the generation, right? The baby boomers are my generation and I'm a younger boomer, but I'm still in the boomer generation. Um, plastics were really created right around and mostly maybe not creative, but popularized, uh, by the baby boomers, right? Because it was convenient and cheap, and everybody could just throw things away and it was easy.

And nobody really thought at the time that these materials, plastics are one of the most wonderful materials on the planet. Um, and without them, we would not have the same types of, of, uh, abilities to feed ourselves and to transport goods and services and all these things that we do now. So, they're, they're very, very, very, I would just put them out there with the best of all materials in a lot of ways, all the way up until you have to dispose of them.

Then they are literally the worst material on the planet. Forget about anything. I mean, maybe radioactive waste is worse. Okay. We don't make a lot of that. Plastics are the worst thing that we make a lot of. And so, to go from the best thing in terms of usage to the worst thing in terms of waste management, um, to be able to have a, and work on a technology, especially when you've done it for a very long time.

And you've had a lot of challenges, and you've kept believing that this was worthwhile. All of that belief, and all of that effort, is now coming full circle, no pun intended, and I'm seeing what I always thought to be the right thing, other people are now saying that's the right thing to do. We all need to be doing that thing now.

Now I didn't invent the thing, I just happened to work on it for a long time, which is recycling plastics. I didn't invent the idea. I try to facilitate the idea. But when you work on something that long for the for

the second half of my professional career and his struggle, quite frankly, for as long as I have in my companies have and then to see it start to really gain traction, momentum and validation.

Um, that's just incredibly satisfying and gratifying. So that's very rewarding. The biggest reward is going to come when we have these systems in place in five or 10 years, and it's just common human practice to do things so that all this plastic's recycled. And I know on my way out the door of life, that the next generations, my kids and my grandkids, and then those subsequent generations of people will, will say, plastics are great and there is no waste problem with plastics because we don't allow that to happen anymore.

We, we, we love the ease of use when we invented all this stuff, and we were lazy and just threw it away. And when we invent a new system to replace the laziness with a much better circular pathway, and these kids all enjoy that, and that's just their normal thing, that's gonna be, it may not be around at that point in time, and it won't be a point in time, it'll be a process over time.

But at that point, the planet is better off. The people are better off. You know, every every facet of what we do, you know, in terms of our life is better off. And that's just gonna be, you know, having had a small part in that process, um, then and now and in the future is just it's why I can't wait to get to work every single day. I just can't wait. So, there you go.

[00:42:34] Nataliya Shcherbatyuk:

It is really rewarding, yeah. And I, I really like that you said, you know, that how great plastic is. And it was one of the probably smartest technology was created. And I do agree that plastic is, it's a good thing that we have it. And the problem is not in the plastic.

The problem is in the management. Yes. Of the plastic. What do we do? What do we do after we use the plastic? That becomes the problem. And I truly want to believe that many of us, we just don't really know what to do. That's why throwing it away might be the easiest and most convenient, you know, option.

Because we would have a plastic bin, like no plastic bin, but the bin for the plastic where it says, throw away your plastic here and do it like this, you know, we might've do it, but yeah. And you know,

[00:43:27] Kevin DeWhitt:

That's such a good point because we think of things that we personally use, right? A yogurt cup or a water bottle or, you know, um, a piece of saran wrap, whatever it is we use. And those are all small items. Those, that, that system for small items is different from a system for an industrial manufacturer of, say, diapers, where you're tripping up. little bits of plastic, but tens of thousands of pounds of the same thing every day. It's all the same stuff. So all these systems] are different.

Think about a car bumper from an automobile wreck. It's cracked. It's probably red or blue. There's some chrome on it, whatever. How do you, there's no garbage can for a car bumper from an automobile accident. There's not. So how do you deal with every piece of plastic? There's lots and lots of systems that have to be It's a hard thing to do because there's a lot of ways in which plastics are used, but they're coming, right? We're coming to think, to ideas where we can take one system and solve a lot of different problems with it. So it's all coming. It's just, it's hard because there's just so, so many varieties of ways in which we use plastic.

[00:44:43] Nataliya Shcherbatyuk:

Yeah, it's almost seeming like, um, industry that creates specific plastic products. Would be beneficial if they also put up what to do with that product You know if let's say you're talking about the car bumper If in case breakage were to dispose of that You know like instruction.

[00:45:06] Kevin DeWhitt:

Yeah So, it's funny you can say that and, and I've checked because there's no instructions, right, but they're extended producer responsibility laws, which Oregon has I think California may have in Colorado has them That's almost like the government's instruction manual for how the producers of plastics are going to have to operate to recycle and be responsible for these end of life plastics.

And so, laws are going to help facilitate the collection mechanisms and the disposition mechanisms for, you know, end of life, um, and, and those are all in process right now. There's a dozen, maybe 2000 states that have those working through their legislature. So, there's lots of approaches to the problem, not just a technology like mine or practice for collection.

There's lots of other things that people are doing. They're all going to have an impact, and that's why. I can sort of look back 25 years ago and now see everything coming sort of and, and aggregating together to form a real powerful, uh, impetus for providing a solution and a framework for, you know, five or 10 years from now It's coming. It really is.

[00:46:21] Nataliya Shcherbatyuk:

It is. Yes. And I think it's coming faster than you think it is.

[00:46:27] Kevin DeWhitt:

Faster, but man, humans were slow to, to change. I think sometimes.

[00:46:32] Nataliya Shcherbatyuk:

Right. But sometimes, you know, when there is the need and push, solutions are coming.

[00:46:38] Kevin DeWhitt:

Well, to your point, Nataliya, because again, you're younger than me. I grew up with the baby boomers that plastics were great, and then we as a collective sort of population or demographic, we're pretty lazy. My kids are not lazy, and my grandkids have been taught from when they were born, here's how we manage things like plastic waste. So, the younger generations are much more. They're much quicker. Because they've learned better systems from childhood. I had to unlearn as did all my peers. We had to unlearn things and start changing. You guys learn from early on how to do things responsibly. So, you're probably right. It is probably coming quicker. Um, you know, it can't come quick enough. Certainly.

[00:47:29] Nataliya Shcherbatyuk:

Yeah, but it's coming as long as you move into the right direction.

[00:47:32] Kevin DeWhitt:

Exactly. And we are in the right direction.

[00:47:35] Nataliya Shcherbatyuk:

Yeah. And on the last note, I wanted to ask you if you have any advice. For our inspiring entrepreneurs that are actually looking to enter the sustainable agriculture industry. What would you tell them?

[00:47:51] Kevin DeWhitt:

Uh, that's a great question. I actually um, try to think long and hard about that question You know people write books and, and give podcasts just on that one question. Um In a nutshell, what I would tell people is, and this, this is maybe not going to sound quite nice, but one of the things that I think is very gratifying, um, and that I think is Is sometimes lacking now, uh, societally in this country, we pushed really hard for this so called instant gratification, you know, you click a mouse button now and Amazon delivers a product and then they can deliver the product in an hour.

You probably be clicking on the button all the time, right? Because you want that thing now. So instant gratification is a real societal thing in the United States, and it is in a lot of countries. Um, because humans like to be able to say, I want it now and it occurs now, whatever that means, um, entrepreneurs in general tend to be thinking about things differently than most people, and in ways that sometimes upsets.

Or does not meet with validation for most people. So, they almost always work, um, in solitary or, or, or not with not very many people around them that is that are collaborators. So, I take, I would say two things to to entrepreneurs that are looking to sort of change the world or change the sustainable agricultural practice right.

Number one, find other like-minded people that you can at least commiserate with if you're having a down day. And you can be excited about and, and, and, um, celebrate with when you're having good days, right? So that's one. Nobody likes to work by themselves, um, in a dark garage. It's just not fun. I've done it.

It's not fun. Second thing, and this is a little bit, this is Sometimes nowadays with instant gratification comes the inability to persevere to say, I'm going to continue to work on this and hammer away in spite of the failures and the pivots I needed to make and the challenges I met. A lot of times people just say, Ah, it's just a challenge.

I just got to give up because that challenges can't overcome it. And most of the time you find ways to overcome challenges by working around the challenge or taking that challenge in a different path differently. So, perseverance, right? Collaboration and perseverance are just key. To entrepreneurial thinking and if you don't have both of those It's a really lonely sort of not very fun place to be and I've been on both sides of that coin Right in the not so fun place and the really fun.

Can't wait to come to workplace I'd really like to live on that. Can't we work to come to workplace every day? Um, so seek out collaborators and partners and helpers and, um, pound away at a problem until you just can't pound away anymore. It's probably solvable. It really is.

[00:51:17] Nataliya Shcherbatyuk:

Yes. Yeah. Well, you know, the good part about these two points that you are saying the first point, for example, nowadays you can find collaboration anywhere because of technology.

You know, you are just. Google it your facebook it your social media that you can find a lot of like-minded people, which is great true and You know that you don't have to physically even go if you you can just find your people On the other side of the screen. So that's fantastic. I use it a lot.

[00:51:52] Kevin DeWhitt:

Yes, That did not exist when I first started uh in 2000 this [00:52:00] technology did not exist you're absolutely right. That's true That's a good point

[00:52:03] Nataliya Shcherbatyuk:

Yeah. Well, you know, even conferences when you think about conferences, when you go to listen to meet people in face face to face, um, situations, you can actually do it online as well. There are options now. So that's, I think it's great. And for the challenges, you know, there is a saying that I like to use.

If you are comfortable, you must be doing something wrong. Because you should not be, and challenge is actually something, it's like a force of the, of the life that makes you grow more. The

question of people, if they want to do it, but I'm sure that those who really want to be entrepreneurs, that's exactly what they do want to do, because that's how you grow. You face the challenge, you overcome it, you face another challenge. It shouldn't be easy. You know, if that would be easy, we all would do that.

[00:52:54] Kevin DeWhitt:

Well, and that's, those are such great points, Nataliya. And I, I can sometimes forget those. Um, when you're in the challenge phase of a problem, sometimes it's just, it's overwhelming and you just don't see a way out and you're, you've tried 20 things, but you know, there's those spray cans of WD 40, which is a lubricant that people use.

I, you know, anybody that uses mechanical stuff uses WD 40. It's a great product. Mm-Hmm.. Well, that's water displacement 40th try is really what that means. They tried 39 formulations of those chemicals that didn't And it took 40 times for the 40th one. It worked. And that probably been on the market now for I don't know how many decades.

You know the same thing with Edison and the light bulb. There were lots and lots of, I mean he tried hundreds if not thousands of different filaments before he found tungsten. Tungsten was the great one. That's hard to do though, because when you, when you hit failure every day for a year, you just think, I just, it's not solvable.

And sometimes you just have to step back and do other things, think about it, leave it for a month and come back. There's all sorts of things people do. But you're absolutely right. You've got collaboration now in ways that were not possible even, you know, 10 or 15 years ago, let alone 25 entrepreneurs almost by definition are those people that think outside of the normal box on a particular problem, and they're passionate to solve that problem.

And so that's going to help a lot when you have challenges because always challenges even challenges. in this space for 25 years and there will continue to be exactly. And that's good successes. Then there are challenges and we're very excited with that.

[00:54:40] Nataliya Shcherbatyuk:

Yeah, yeah, yeah. And, and you know about challenges that that's what you brought a few minutes back that we want things to be done and we want them now.

And sometimes we'll be needed just like you say, step back or sleep on it, get another day or another month. There is something else to work meanwhile on and then keep going back to the same thing again. And there is no, you know, I like to be, I, as you notice, I like to be quiet on the positive side because I don't really think there is no unfigurable things.

Some things just take harder. To find the way. But if you think if we would live a hundred years back and you would think about cell phones and internet, that wasn't even in the mind, like, how would you even think of that? And now see where we are. Yeah.

[00:55:31] Kevin DeWhitt:

It is amazing. If you look at. You know, I mean, I'm blessed in having been, I was, so I was born in the 1950s, 1959 to be exact, uh, but in the 50s, right?

And so, I was right on the, on the, uh, cusp of the 60s and there was a, you know, we were in an industrial revolution, but we, by the time, you know, in my entire lifetime, we've gone from an industrial revolution. And those outcomes to a technology revolution, and that's still happening with artificial intelligence going on and all that.

Again, that's your generation and those problems to encounter and solve. But it's been pretty fascinating. There's been a lot that's gone on. And if you look backwards and get historical context, you can see, to your point, there's you know, nobody would have thought it possible that you could communicate with somebody on in Germany with a little device, you know, the size of a, um, I don't know, um, uh, very thin candy bar.

Um, it's crazy to think about that. And yet, it's, that's all my grandkids will ever know is cellular, you know, telephone technology. And there were no corded phones that you had to, you know, spin your finger and dial on. Probably you don't even know about those phones.

[00:56:54] Nataliya Shcherbatyuk:

I do. I do. You have them. I'm Yeah. Even, you know, recording this podcast today, where you are, where I am and look at this, you're doing this.

[00:57:07] Kevin DeWhitt:

Yeah. No, you're, you're, you're right. And those are great perspectives. And sometimes you get Again, that's why collaboration on even things like podcasts are so fun because you bring a lot of perspectives as, oh yes, Natalia, you're absolutely right.

[00:57:20] Nataliya Shcherbatyuk:

Yeah. Well, we humans, we get frustrated. it's also normal, but you know, step back, thinking about it, think about something else, and then

[00:57:32] Kevin DeWhitt:

go back to your problem.

[00:57:35] Nataliya Shcherbatyuk:

Yeah, definitely. Well, Kevin, thank you so much for a great discussion. I'm sure our listeners learned a lot, and they're probably going to think now where to throw away that plastic bottle.

[00:57:49] Kevin DeWhitt:

Yeah, if you're in the Salem area, bring it by my place and we'll take care of it. There you go.

[00:57:56] Nataliya Shcherbatyuk:

Yes. Yeah. Fantastic. Yeah. Thank you so much, Kevin.

[00:58:01] Kevin DeWhitt:

You're welcome. It's my pleasure.

[00:58:06] Nataliya Shcherbatyuk:

That's it for today and until the next episode. You can find more information by following us on Instagram and LinkedIn by @mulch_matters and going to our websites and choose mulch technologies. This work is supported by Specialty Crops Research Initiative Award 2022-51181-38325 from the USDA National Institute of Food and Agriculture. Any opinions, findings, conclusions, or recommendations expressed on this podcast are those of the author(s) and do not necessarily reflect the view of the U.S. Department of Agriculture.

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