

Almost There

An Emerson Collective Podcast

You can do WHAT with seaweed???

Dwayne Betts:

So a little while ago I was in Louisiana. I was at the Louisiana State Prison. I was there with my organization Freedom Reads, and we were opening libraries at the prison that's often called Angola. And I'm driving down, because it's 17,000 acres. And so driving around, you're driving in a car and I'm driving and I see these cows, so many cows. And you know what I think about? I think about technology and I think about seaweed and I think about what it means to create a green space. You got to wonder why that's true.

Joan Salwen:

I ran across this technology, which is an agricultural technology which involves feeding seaweed in a very small amount to cattle and it acts as a methane suppressant. It's like Beano for cows or Gas-X for cows or something like that. It's just a natural remedy to the world's problem.

Dwayne Betts:

From Emerson Collective, this is Almost There. I'm Reginald Dwayne Betts and my guest is Joan Salwen, the CEO of Blue Ocean Barns. Let me tell you what she does now, what she's taught me, that seaweed could decrease the methane gas that cows produce when they burp. And that methane gas, it accounts for a lot of global warming. The wild thing though is her career at first began in the tech space and then she ended up teaching literature to young folks. And those two things led her to be where she's today, where she tells me that seaweed is the technology that she's using to change the world. Can you imagine that? From a farm in Iowa to the recognition that farming seaweed in Hawaii might change the way that we all live? So let me ask you this, because this is actually fascinating. I think you might be amongst the first generation of folks, and tell me if I'm wrong, that had a whole life in tech and then was able to move on to a different career. Do you think that's true?

Joan Salwen:

Oh yes, definitely. When I first started at 21 years old with Accenture, which at the time was part of Arthur Anderson, the very first week I was there, I learned COBOL programming. Very first week I was working with technology and worked with it for 20 years until I left that career and started career number two.

Dwayne Betts:

I want to ask because given that experience on the frontline of the creation of a field essentially and living through that whole field, in what ways did that shift how you thought about the next work you would do and how did it shift that?

Joan Salwen:

I think you couldn't have been in tech at the time, starting in the early '80s, without always being aware that there is new capability and that things that we know today are going to be undone by things that are going to be made easier, more powerful, more impactful, just around the corner.

Dwayne Betts:

But that's great. You left tech and went to the oldest technology. In fact, you started going to the oldest technology even before you went to tech because you got involved in the mentoring program and then you started teaching. So what made you leave and go to an even older technology?

Joan Salwen:

That's funny. It was an older technology, but the purpose of that school, the whole mission of Atlanta Girls School was to equip girls, young women to be unbounded with the potential that they wanted to achieve. And so it was a STEM school, it was a leadership school, so it was basic teaching and learning, which is, as you say, one of the oldest technologies in the world. But it was for the purpose of helping girls learn that they can fail easily, they can take risks, it's not going to hurt them. They can ask dumb questions, it's not going to be judged. And that made all the difference.

Dwayne Betts:

How did you do that? Through literature though, because I would've thought that somebody coming from the tech space and somebody who had a degree in poli sci would go to the Atlanta Girls School and teach C++.

Joan Salwen:

Well, 20 years in tech, I really needed to turn on a different part of my brain, Dwayne. I just felt like I had left certain neurons unfiring and I wanted to immerse in poetry and I wanted to immerse in drama and literature. And so when I left Accenture on my 20th anniversary there, I went back to school. I really wanted to cross a bridge into whatever my next career was going to be. And so I spent two and a half years just self-care, self brain care, allowing myself to dream and think and to be in conversation about ideas and words rather than about code and testing.

That just helped me realize that you can use the same analytical processes that you use to build software to build lots of things and including good conversations among scholars on what an author might've been thinking when she wrote down the word she did. So that's kind of how I ended up being a teacher and not in either business or tech, which I could have taught with my eyes closed, but in teaching literature which actually needed me to be fully alive and present for those students.

Dwayne Betts:

I typically ask people, what is that favorite book to teach or ask them what is their favorite book to talk about? But I wonder what was the favorite book of your students to engage with?

Joan Salwen:

In seventh grade, which is a pretty young age, 12 years old, I taught a Midsummer Night's Dream and we read the entire Shakespeare play-

Dwayne Betts:

I learned that in seventh grade.

Joan Salwen:

You did?

Dwayne Betts:

Yeah.

Joan Salwen:

Awesome. Did you really read the Shakespeare text or did you read some kind of slightly watered down middle school text?

Dwayne Betts:

No, I had a great English teacher that year and we read the Shakespeare text and we also read the classic that everybody reads about the boys that get stranded on the island.

Joan Salwen:

Oh, oh, oh-

Dwayne Betts:

Lord of the Flies.

Joan Salwen:

Lord of the flies, absolutely.

Dwayne Betts:

You sound like you were excellent English teacher and the frightening part is clearly you were excellent in the tech world. The frightening part is that you confront me with this dilemma of how do we move on to the next part of the conversation. So how do you go from the girl schools, and I know how rewarding and satisfying teaching is, but how do you go from doing that work to what you're doing now?

Joan Salwen:

Yeah, Well I'll answer that by telling you a story, Dwayne. So I grew up in the long shadow of my grandparents' farm in Iowa. My father was a farmer until my mother told him "We got to live in town. I'm not doing this. This just isn't working for me." But we still lived near the farm and spent every Sunday at the farm with my parents and grandparents. And I really saw my grandfather as an amazing steward of everything in his care, including my family, my dad, but especially the land, the animals, even the creek that ran through his farm. He took excellent care of things and he was my hero. And as I grew and went to college and beyond, I learned just over the course of time that livestock have an amazingly negative impact on the atmosphere because burps from cows and sheep and other animals like that when they're digesting feed is laden with methane gas, which is one of the most potent greenhouse gases.

As soon as I learned that, I just couldn't forget it. I couldn't forget it. As I was working at Accenture and then at the girls school and I wondered all the time, Dwayne, what would my grandfather had he still been alive wanted to do or wanted me to do? Learning that livestock just are naturally engineered by mother nature to be creators of greenhouse gas. We're not burning any fossil fuels or anything. It's just a very natural process that creates methane. So when I was at the girls' school, as I mentioned it was a STEM program, girls were asking all sorts of questions and were following rabbit holes down and left in order to find clues to the answers that they wanted. And so I decided, you know what I need to do? I need to apply that to myself and I need to go somewhere where I can dig into what the state of play is

with livestock, methane gas, what's been tried, what works, what doesn't work, and what is stopping potentially something that we know works from getting traction in the market.

How do I play in that game? So I went to Stanford University, they had a program for people like me who had had some success in career and all that kind of thing, but we're looking for more meaning, more impact, another chapter. And that was definitely me. So at Stanford I was able to meet with all sorts of MacArthur geniuses and Nobel Prize winners and all sorts of cool people to talk about the climate. And I was constantly asking, what do you know about enteric methane, digestive methane, what can be done? And so late at night digging through journals and presentations and all that kind of thing, I ran across this technology, which is an agricultural technology which involves feeding seaweed in a very small amount to cattle and it acts as a methane suppressant. It's like Beano for cows or Gas-X for cows or something like that. It's just a natural remedy to the world's problem.

Dwayne Betts:

I want to get into that, but first I can't resist an opportunity to ask you a couple of questions about your grandfather because it seems like somehow as a steward of his family, he helped you become an endlessly curious person.

And I hate to say this about farmers, and please forgive me, farmers don't seem to be endlessly curious people as a rule because I don't understand it. So can you help me understand what a day I'm sure they are, but I just don't get it. And so I wonder because nobody would connect your career path to being a child of farmers, and I think that's classist of us and the kind of elitist of us. But it's also this notion that you need to move away from agriculture to embrace technology. And you said something at the end, "I discovered this technology," and I was like, "I knew we were going back to computer science," and then you said "seaweed." And so I wonder how do you think about the role that your grandfather's played in inspiring that kind of curiosity that empowered you to leave but also empowered you to return before we talk a little bit about this sacred cure, the seaweed cure.

Joan Salwen:

Sure. Well, I got to tell you, Dwayne, you do have it wrong about farmers. They are probably the most resourceful people on earth. They're out in the middle of nowhere all by themselves facing nature every single day. And so they're constantly having to invent new uses for things they have on the farm, inventing new ways to deal with water, with soil, with plants. They're just amazingly good problem solvers. And this is kind of a gross example, but I remember and probably will never forget, being a very young child at a farm where the farmer needed to castrate a tomcat. And so I saw the way he improvised-

Dwayne Betts:

Wait a minute.

Joan Salwen:

Yeah.

Dwayne Betts:

Wait a minute-

Joan Salwen:

Oh yeah.

Dwayne Betts:

Wait a minute. Because the only thing I know about tomcats is apparently Alexander Hamilton was one according to Hamilton to play. And when I heard that, I thought, what is a tomcat? But I was always afraid to ask anybody because it felt like I didn't have permission to be ignorant about this thing. So what is a tomcat?

Joan Salwen:

Well, I think of a tomcat as just a pretty active male cat who needs to be out there womanizing all the time and causing all sorts.

Dwayne Betts:

Oh yeah, that's what they said about Alexander. Okay, I got it. Now I get that part of the plate that I never got before. So a farmer had to castrate a tomcat.

Joan Salwen:

He did. He did. So he used the tools available to him. He's not a vet. He's not doing a spay and neuter type job. He used the tools that he had and kind of let's say restrained the cat in the rafters of the barn and kind of came after him with a pocket knife kind of thing and took care of the job. But I saw him have to shoot rabbits in the garden and then we were having rabbit for dinner. That's just the way everything worked. So I think people who take care of animals and who nurture living things are super great at finding ways to get jobs done that other people would think just aren't possible to be done, but they're very, very curious and very resourceful.

Dwayne Betts:

Well, what you say about the tomcat reminds me of something because one response to the tomcat is just to kill it. And the idea that you have to find a solution that allows it to still live, I think is a powerful impulse. A lot of people have talked about the need to curb out consumption of meat because of the methane gas, and they've talked about curbing the consumption as a way to reduce the population of cow. And what I see that you've done is you've taken this problem and thought, "Is there a solution to this problem that doesn't require me to give up steak?" And I don't know if that's what you were intentioning, but now I feel like there might be a solution that doesn't require me to give up steak. And so I wonder how has that worked out?

Joan Salwen:

It's worked out super well, and I have to say, I think that probably as a western society we do consume too much meat and too much cheese, and it would probably behoove all of us if we could pull back on our consumption. And yet I have from my grandfather both a respect for life and also a respect for choice. I think if we could have a world in which consumers were in charge of deciding do I want to eat a sustainable steak or do I want to eat a sustainable alternative to that steak? And there may be people for many reasons who choose one or the other, and I think that we live in a world that is an and world. We need sustainable alternative proteins and we need sustainable animal proteins.

I did want to find a way also recognizing that small holder farmers all over the world rely on small livestock herds for their livelihood that without those herds, it's unclear how those people would feed

their families, how they would feed their villages, et cetera. So we absolutely need sustainable meat proteins. So it's working unbelievably well because the seaweed, it contains this kind of compound that shuts down methane gas in a very small inclusion rate, Dwayne. So it's not like the cows have to completely change their diet. It's like a sprinkling of cilantro. It is just less than half a percent, less than a quarter of a percent of their diet is needed for this seaweed to have the effect of reducing methane gas by 80%. It's enormous. It's huge. It's a game changer.

Dwayne Betts:

So I guess one of the things that you need me to ask, because we are having this conversation and you're having a conversation as an educator, as a consultant, as a tech specialist, as a farmer. At least as a farmer's granddaughter, but you actually sound like a farmer to me. You sound like somebody that's taken seriously to need to steward the land and a steward these animals. I guess my question is what kind of organization is Blue Ocean Barns? How do you consider it? When you first introduced this concept, you called it a new technology, but I just wonder what's your chosen way of front facing this work to the country and to the world?

Joan Salwen:

Yeah, So originally I saw Blue Ocean Barns as an organization that is in the farming business, in the business of farming seaweed as not an agricultural product necessarily, but as an aquacultural product. And that would be minimally dried and processed, milled and shipped to farms. And so we were kind of a farm input in that farming supply chain. I no longer think that. I no longer think that because where the demand is coming for this product is not from the farmers. It's coming from large food companies who really need us to be in the carbon mitigation business. They need us to be in the attainment of sustainability goals business, de-risking their reputational risk of saying things like, "We're going to take 40% of our emissions out of our supply chain by 2030."

If you are a company that relies heavily on beef or dairy and you want to take 40% of emissions out of your supply chain by 2030, there is no way to do it without addressing cattle. Because we are working with companies who have already put solar on all their buildings, Dwayne, they've retrofitted their fleets to be electric vehicles, et cetera. They've planted cover crops, they've planted trees, they've done every single thing they can do to sequester carbon and reduce carbon in kind of the easy low hanging fruit ways. And when they do that, they still see that their carbon footprint is enormous because in their supply chain they have cattle and the amount of methane gas emitted by the 1.5 billion cattle in the world is gigantic.

Dwayne Betts:

We talked about burps, but I'm assuming that they exude methane gas when they fart as well. What does this seaweed do to that? And also how is it actually measured to get it down from 80% to whatever it becomes once they change their consumption?

Joan Salwen:

Some great questions there. So you have to envision that the cow actually does emit almost all of the harmful gas out the mouth. And the reason for that is a cow has four stomachs and it's in that first stomach, the rumen that this methane gas is created. It doesn't have time, Dwayne, to get through the second, third, fourth stomach and through the intestines out the back. It just comes straight out the front. So we only really have to worry-

Dwayne Betts:

This is wow.

Joan Salwen:

I know, this is something you can use at a cocktail party. It's like a really good fun fact.

Dwayne Betts:

I'm telling you, you're about to tell me that cows have better memories than elephants and I know you're going to be lying.

Joan Salwen:

I'm going to tell you cows are really smart. So knowing that it comes out the mouth, the only thing we need to measure is around their face. And so this cool company in South Dakota named C-Lock has invented this big machine. It looks like an oversized Disney World garbage can with a big hole in it. And this machine drops down alfalfa cookies in the barn and cows very nonchalantly and willingly go on over there to munch on the cookies. And while they're in there, this machine is of course a gas flexor. And so it's measuring how much CO₂ is coming out of the nose and the mouth, how much hydrogen is coming out, how much oxygen is coming out, how much methane is coming out. It all gets measured after about 20 seconds more alfalfa cookies fall down. She stays right in there, she eats the rest of the cookies. More come after 20 more seconds.

I'm not going to tell you that cows have a better memory than elephants, but I can tell you two things. They can count and they can tell time. So when the last group of alfalfa cookies come down, the cows out of there. Why? Because all the previous times she has gone in there to eat alfalfa and snort into the machine. It's been the same number of drops. And seriously, they get trained to know how many drops there are and then they get out. They don't wait to see like "Maybe if I stand here for 20 more seconds, more alfalfa cookies are coming." They know, they're out of there. Further when we're doing this measurement system, they have an ear tag and the ear tag reads to the machine who the cow is, and if she's been there in the last four hours, she doesn't get a chance to be measured again.

We just are measuring, we want to measure all the cows, so we keep cows from going back into the measurement machine if they've already been there. And also we don't want them to live on alfalfa cookies. We want them to eat the feed ration that has our seaweed mixed in with it. But I want to tell you, the cows begin to learn to tell time because it's only after four hours that the cow can go back in for another helping and you can be sure that about three hours and 45 minutes after she ate last time, she's back in line, Dwayne. She knows it's almost her turn. I'm not kidding.

Dwayne Betts:

I find this endlessly fascinating. It makes me want to go back to literature for a couple of reasons. This sounds like something straight out of a sci-fi novel. Do you find books to still be an influence on your work? And if you did, what books do you have people read and think about if you hope that they'll be able to become better able to even hear what you're saying. For the people who aren't hearing, are there books that allow them to say, "Okay, now I see this."

Joan Salwen:

I read a lot of nonfiction now. So like Codebreaker, which is the story of how genetic modification and CRISPR got legs, is a story of determination. It's a story that's rich with ethics and social questions and all

sorts of things that almost reads like a novel, I must say. And I think narrative nonfiction is a great kind of middle ground between the fiction that I don't have time for and the nonfiction that I really crave. But I would really say that when I ask people to read things, I ask them to follow their passions that if you love dystopian, if you love horror, if you love romance, spend your time reading things that allow you to recharge, regenerate. Not necessarily all the time to teach you something, though clearly literature can. I'd now see literature as a luxury and I need frankly to make more time for it in my own work.

Dwayne Betts:

What's interesting is I don't know if I see literature as a luxury as much as I see it as, I mean you said it before you went back to school for self-care. So I see it deeply as a vehicle and a mechanism for self-care. I do think narrative nonfiction, I say, well, a lot of nonfiction now sounds like fiction anyway. They use the same kind of ways to pull you in, and it is actually kind of trying to value the quality of writing in the same way.

All of this though makes me wonder as an 18 year old kid in Iowa, now when you reflect back on this long journey that you've had, what did you want to be? Because it doesn't sound like you were one of those people that said, I just want to be away. So I wonder, what did you want to be as an 18-year-old or a 12 year old kid in Iowa who was looking out on the world from the confines of a farm or from the confines of a city that's just on the outskirts of a farm, but still intimately connected to a part of life that was rapidly disappearing. And actually argued that it had less value than the tech world that was developing and then a political landscape that pushed us to study poli sci, whatever. I wonder, what did you want to be as that kid?

Joan Salwen:

When I was 18 living in Iowa, I wanted to be a salesperson. I really did. I wanted to be a salesperson, but I didn't really necessarily want to sell things computers, which I did sell at IBM or brooms or anything like that. I wanted to sell possibilities. I wanted to sell ideas, and the tech world allowed me to do that. It definitely allowed me to sell speed, service, solutions that our clients needed to deliver to their markets, and that was really satisfying to be able to sell a future that without technology really wasn't possible. At the girls school, I sold possibilities again that you can be what you want to do. And so I instituted things like the senior speech program where every single senior addressed the entire student body about what she was hoping to attain or hoping to achieve in her life. And it was sometimes the very first time girls had had an opportunity to address an audience and be heard. It was a lot of fun.

Dwayne Betts:

Yeah, I think you're still.

Joan Salwen:

At Blue Ocean Barns, I'm still doing it. I'm still doing it. Yeah. I want to bring into being the world that has not yet been realized and is better.

Dwayne Betts:

I don't even want to say this because you're about to say, "Well, it's actually not counterintuitive," but it seems counterintuitive that Blue Ocean will end up in a place that is so close to the blue ocean. So how did you get to Hawaii?

Joan Salwen:

Yeah. Well, once I learned that this state, and in fact this county had a facility Dwayne, where it's like a WeWork essentially for people who work with seawater. Different suites or different buildings that have access to deep seawater that is pumped up from the ocean floor and turned on with a spigot right into the room. So that allowed us to envision creating tanks and creating room full of cultures and seed stock and all that kind of thing. Once I knew that this state had this facility, I barely thought about picking up and moving. We want to site our seaweed farms in places where our seaweed grows natively and naturally.

We don't want to set up factories where we're going to be creating unintended consequences with invasive species or things like that. Plus we want to use water and growing medium that the plant has already proven it loves and thrives in. So siting our farms where the seaweed grows natively is important. It grows abundantly in Hawaii and actually in lots of places around the world. But Hawaii is a place that not only has the seaweed, but has the infrastructure. And as you know, I do respect technology. So I know that to have the seawater intake and all the filtering and all of the possibilities that are afforded here meant that I needed to be here.

Dwayne Betts:

I see. I told you that I'm asking this question and you're going to see it's not counterintuitive all's obvious reason why would I go anywhere else? But it makes me ask this different question. You said, I believe you said it's 1.5 billion cows. How much seaweed do we need to actually put a dent in this problem? And will you have to build these seaweed farms and other locations around the world that have conditions that will support the thrive and grow for that seaweed without messing with the current ecology of those places?

Joan Salwen:

Yeah. Well, two good things to offer there. One is we have since we started growing in 2018, improved and improved and improved and improved our plant such that a lower and lower and lower level of inclusion in the diet is needed in order to affect the methane production of the cattle. And that's vital for being able to envision 1.5 billion cattle eating it. If we had to replace, for example, the entire diet with the seaweed, we'd have to grow a whole lot, but there are 93 million cattle in the United States, for example. We can satisfy the needs of all 93 million cattle in the United States on a parcel of land that's about 4,000 acres. That might sound like a lot, but it's half the size of O'Hare Airport. It's not going to take over coastlines, and we're not going to have to get rid of everything that's in the ocean to grow it. We'll be able to, if we can serve 93 million cows on 4,000 acres, we're going to make a lot of headway.

Dwayne Betts:

So do we produce methane gases when we burp, and do I need to be thinking about how to cut my steak with seaweed?

Joan Salwen:

You only have one stomach, Dwayne, so you do not have a rumen. You're not creating methane.

Dwayne Betts:

I don't need to start cutting my steak with seaweed?

Joan Salwen:

No, no. You need to eat foods that are created without excess greenhouse gases, but you're not really burping any out that are of concern.

Dwayne Betts:

This has been a delightful conversation. And one of the things I'm really impressed by is how you've been able to synthesize all of the knowledge that you gained across your very careers and bring it to this point where clearly you have to think about scale, you have to think about communication, you have to think about every aspect of farming. But what seems to be central to that is recognizing that we have for far too long thought about technology as this very narrow and isolating thing, and I love how you are expanding the notion of what it means to be in a tech world. I might start telling people I'm in a tech world because I'm a poet. I don't know if I could sell that, but I'm going to start telling people that as a poet, I am basically pedaling the original technology. It is the one that got us here in the first place.

Joan Salwen:

I've really enjoyed this conversation. Thank you for your curiosity and for spending time with me.

Dwayne Betts:

Almost there is produced by Jesse Baker and Eric Nuzum at Magnificent Noise for Emerson Collective. Our production staff includes Eleanor Kagan, Brianna Garrett, and Paul Schneider, along with Patrick D'Arcy, Alex Simon and Amy Low from Emerson Collective. Special thanks to Nia Elliott. I'm Reginald Dwayne Betts. Thank you for listening.