

Nicki: Welcome to The Healthy Rebellion Radio. This is an episode of Salty Talk, a deep dive into popular and relevant health and performance news pieces, mixed with the occasional salty conversation with movers and shakers in the world of research, performance, health, and longevity.

Nicki: Healthy Rebellion Radio Salty Talk episodes are brought to you by DrinkLMNT, the only electrolyte drink mix that's salty enough to make a difference in how you look, feel, and perform. We co-founded this company to fill a void in the hydration space. We needed an electrolyte drink that actually met the sodium needs of active people, low carb keto, and carnivore adherence, without any of the sugar, colors, and fillers found in popular commercial products.

Nicki: Health rebels, this is Salty Talk, and now the thing our attorney advises, the contents of this show are for entertainment and educational purposes only. Nothing in this podcast should be considered medical advice. Please consult your licensed and credentialed functional medicine practitioner before embarking on any health, dietary, or fitness change, and given that this is Salty Talk, we should expect the occasional expletive.

Robb: Welcome back, Debra Winger.

Nicki: Good morning, everybody. Welcome to another episode of The Healthy Rebellion Radio. This is a Salty Talk, and no, I have not smoked a pack of cigarettes, I just have a cold.

Robb: A cold.

Nicki: Yes, but thankfully you don't have to listen to my voice the entire episode, because we had Diana Rodgers on for another fireside chat.

Robb: Who did not have a cold.

Nicki: She does not have a cold. Do you want to give an over ... Well, actually first, I wanted to say this is Salty Talk number 42, which is your favorite number.

Robb: Yeah.

Nicki: Isn't it?

Robb: It is the answer to ...

Nicki: The answer to ...

Robb: Life, the universe, and everything.

Nicki: I thought you might ...

Robb: Just don't know what the question is, so.

Nicki: No. Does anybody know what the question is?

Robb: Yeah. There you go.

Nicki: All right. Well, before we jump, I want you to give a little overview of what you and Diana chatted about, but I just want to remind everybody that we're just wrapping up this final week in The Healthy Rebellion 30-Day Rebel Reset inside the community. This

was community week, and that's wrapping up, and we have our book clubs starting in just a little bit. We're reading The Book of Joy by the Dalai Lama and Desmond Tutu, and then we also have our Seven-Day Breathwork Challenge coming up the first week of June. So, those and many more things coming up this summer are available inside The Healthy Rebellion, and if you're not yet a member, you can join us at join.thehealthyrebellion.com. Tell us what you and Diana chatted about today.

Robb: So, Diana's been on the road a lot, doing... Funny enough, industry has finally taken a really close look at this regenerative ag topic, and people can get, I don't know, cranky about that, the word ... I'm losing my mind here. You can look a scan to the industry taking an interest in this stuff, but there's kind of a reality that this carbon tunnel vision that has emerged around food, like the methane emission story is literally the only thing that big food, the vegans, World Health Organization, can hold over this regenerative ag story. It's better for the animals. It's better for the local economy. It's decentralized. It reduces the heat footprint on the planet. It renutrifies the soil. It reestablishes diverse ecosystems, even though it's maybe not 100%, "natural." But the Audobon Society has taken a huge interest in regenerative ag in the last 10 years, because bird populations rebound and explode where people are doing regenerative agriculture practices, which is literally a canary in the coal mine of the health of ... the scene, but there's kind of this pesky thing about animals eating grass, cellulosic fermentation, and methane release.

Robb: In Brazil, which Brazil is a really fascinating place, still technically a developing country, but lots of interesting infrastructure and whatnot, but they are a major exporter of beef, and so they're being saddled with this carbon tax type issue because of the methane release of the cattle. Diana and I, and other people, smarter and more well-versed than us, although we can read the literature and know as well as they do it, it's kind of a fool's errand to freak out about biogenic methane sources, and biogenic carbon sources because it's part of a cycle. So long as we don't break that cycle, then things are pretty good. But it's interesting that I have long predicted that regenerative agriculture practices would likely take root in the developing world far ahead of the United States, because of all the Byzantine regulatory capture, and just the shenanigans.

Robb: I won't divert us too much into the financial system, but the fact that the US has the global reserve currency is both awesome and terrifying at the same time. It allows us to do things that are just dumb, and then when that breaks, it's going to be pretty epic. The way our food system is set up, it will allow us to do things that are dumb until ... hopefully it doesn't break so bad that we can't reel it back and put things back together. But again, Diana's been traveling a ton, just went to Brazil and had a really interesting experience, and there's some interesting social justice topics around developing countries, and their need to develop. The mainly white, mainly westernized world, finger-wagging at them about carbon emissions, and rainforests, and different things like that, is a little ironic given that Europe, and the Americas, North America has already gone through its industrialization process. There seemed to be a lot of people that don't feel like folks living in the rest of the world should have the benefits of going through industrialization, and living in modern conveniences and whatnot, even though those are challenging.

Robb: But anyway, we talk about all that stuff, we talk about a bunch of other things. It really is a good, pretty darn good show, mainly because Diana's there, not because I'm there. It's just cool that she is really at this interface between the rubber hitting the road dietician view of what constitutes a good nutrient dense diet, and then interfacing that with the way that our food system is working or not working, and the way that folks are trying to tackle that, like in Brazil, there's this really fascinating opportunity if folks are really ... Well, I'm not going to give that away too much, but there's real concern around the

methane emissions that are inherent in the variety of cows that do well in that environment.

Robb: It's hot, there's a massive bug load, and so parasitic worms, and mosquitoes and everything, and so there's a ... like Black Angus, the type of cattle that are more common in North America would not do well there, in Brazil. They have kind of a hybridized variety that draws a lot of its stock out of India, which similar hot, humid, but buggy environment, but they manage heat, and infectious disease better in many regards, but they grow slower as a consequence. It allows a situation in which more methane can be produced over the life cycle of the animal, and the fascinating solution to that is doing a little bit of feedlot finishing at the end of their life cycle, and you can cut that period of time in half. Now, what they're doing on these feedlots in Brazil is things like orange peels, and banana peels, and a little bit of grain, but it's actually the byproducts of ton of the other agriculture and industry that they have, the ethanol industry, and whatnot.

Robb: Apparently, the sugar cane industry in Brazil is, in theory, more efficient than the corn ethanol industry here because it seems to actually be net energy positive. Diana said that the guys who raised the sugar cane for ethanol run their rigs on ethanol because it's a net energy positive deal. Color me surprised on that, that's cool, and that should be the standard of whether or not something is green versus a boondoggle, but it raises this really interesting question around, "Are we going to allow idealism to get in the way of an otherwise good regenerative system?" Just because the animals are finished in a feedlot doesn't mean that it needs to be inhumane. It doesn't mean that it needs to be a terrible experience for the animals. It doesn't mean that it needs to be a terrible thing for the environment. If we really are in ... Although, I will say, I think, that this tunnel vision around carbon emissions is actually driving things in the wrong direction, it's virtually impossible to get people to even listen to that.

Robb: So, at a minimum right now, there's a real, fascinating efficiency that emerges from a combination of regenerative practices for the 70% or 80% of the life cycle the animal spends on grass, with a finishing on the feedlot. But a feedlot within the context of that local environment, and the inputs that they feel like are smart to use, including the use of crop residues and whatnot. We also talked about the reality of what's happening with the Amazon Rainforest, and cattle are not the end stage of what happens when land is cleared. Folks, right or wrong, create a lot of backlash around what's happening with the usage of the Amazon Rainforest. Nobody understands that there's actually legal precedent, that if somebody goes and clears land and develops it, that it becomes their land. So this is some legal stuff that needs to be considered, and all kinds of fascinating social, political things around that, but ... I'm just jabbering on like an idiot.

Nicki: Well, we can ... we can-

Robb: It's a good one, and it's another one of these things where I learned a lot. Diana learned a lot on this trip. We're pretty well steeped in this stuff, but she got to spend more than a week with the scientists that are involved in trying to mitigate methane emissions in the cattle herds of Brazil. She got to talk to these people, and hang out with them and share food. It's interesting and it's complex, and it doesn't lend itself to little soundbitey bullshit, and this is just another piece of the story that if you really want to be conscientious about climate change, and about animal husbandry, it's not a sound bite. It's not something that fits nicely generally into social media. It's something that we really have to dig into, and if you care about it, you have to invest some time into understanding it.

Nicki: Such a cool experience, and so thankful that she was willing to share-

Robb: Glad she is in a position to do it because I am not.

Nicki: Right.

Robb: So, yeah.

Nicki: And then share that with all of us, so that's really cool. Before we dig into that, I just want to remind you all, as you know, that this Salty Talk episode, and all episodes of The Healthy Rebellion Radio are sponsored by our Salty AF electrolyte company LMNT, and I'm super excited to announce the moment you have all been waiting for, Grapefruit Salt is officially back, and available for all value bundle subscribers. If you're a current value bundle subscriber, you can add boxes of grapefruit to your next bundle order, or if you want to be a value bundle subscriber, you can also create your value bundle box and add Grapefruit Salt to that box. Just a little early access perk for subscribers. Grapefruit Salt will be available to everyone else, so people just ordering single boxes at a time on May 31st. Remember, this is a limited time flavor, once it's gone, it's gone, until next year.

Robb: We aren't farting around with that, and we're probably not changing that despite whatever gnashing of teeth, and everything else.

Nicki: We've had begging and pleading, and all kinds of people frustrating themselves upon the altar of ...

Robb: Figure out what your weekly usage is, extrapolate that over 51 weeks, 52 weeks, and go.

Nicki: All right, folks, you can grab your value bundle and add that Grapefruit Salt at drinklmnt.com/robb, that's drink L-M-N-T.com/R-O-B-B. Now, the conversation with Robb and Diana.

Diana: Welcome back to the podcast, everyone. I'm going to do a catch up today, a little fireside chat with Robb Wolf. Welcome, Robb.

Robb: Thank you for bringing me back. It just shows the poor decision-making that you have in making all things, life and friendships, so thank you.

Diana: So, you and I were just chatting for about 20 minutes before I realized we weren't recording, which is awesome. We were just sort of catching up and I just thought both of our listener groups would like a little update on what we're all up to. I just got back from some travel. You've got new puppy and other stuff going on, so maybe you could give a quick update.

Robb: You go first, yours is much more exciting. You've been the world traveler. You go first. I think it's cool, I know I'm going to toot my horn a little bit, in that long ago, I said that regenerative ag might emerge in the developing world far earlier than it does in the United States. It may never happen in the United States and Europe because of how fucked up all of our systems are currently, and how regulatorily captured all of these systems are. But in the developing world, people can't print their own Fiat currency at infinitum, people have tried that, and it ends up destroying their culture and their economies, and everything. Just as an aside, it's interesting, like El Salvador and Honduras ended up pegging some of their financial backing to some crypto, which maybe is good, maybe is bad, but people are looking at really outside the box

alternatives for what they're trying to deal with on economic issues, and food security issues, and whatnot.

Robb: You've traveled before to Southeast Asia, trying to get out ahead of the antibiotic topic, which remind me to talk about that, because I've had some thoughts about that. But then also you ended up going to Brazil recently, because folks are looking downstream and trying to figure out, "What are we going to do for our food systems so that we can support both an expanding population, a more urbanized population, but then do it in a way that we are not completely destroying the environment around us?" Again, I will toot my own horn a little bit, that I said that regenerative ag may happen everywhere else first before it really takes root here.

Diana: Yeah, I was so lucky, I got to go down to São Paulo for a conference on methane, and it was a joint conference with a few organizations. Frank Mitloehner from UC Davis was down there. There were a bunch of other international experts. So, the cattle industry in Brazil is under a lot of pressure from multiple different angles. They've got cattle are destroying the Amazon, which we can talk about briefly too, because it's just not true, but then we've also got companies being blamed that they're causing way too much methane, they got to reduce the methane, so part of my talk ... They had all these experts coming, talking about how to reduce methane, and I got to see ... they took me all over the country. Unexpectedly, I didn't realize that that was happening, and so I got in a car and they were just like, "Okay, we're going." I got to see the state of São Paulo's research center on breeding and methane research.

Diana: I posted a little bit on my Instagram story about these glass rumen, fake rumens that they have. They used to, in order to research methane, actually cut a hole in the side. I'm sure some people have seen this maybe on Discovery or something, where you could reach into the cow. It was like this hole they cut in the stomach, that's now considered inhumane in most places that have access to these fake rumen. We walked around inside the test lab with all of these brilliant animal scientists, and they're just testing different feed additives to potentially reduce the methane output.

Diana: At this conference I went to, there were many experts talking about reducing methane, but then I talked about this whole idea of this carbon tunnel vision, and you have written about that. I wrote about it a little bit on my Instagram, but basically just like this overemphasis on methane as the big bad thing, when there's all these other ecosystem functions that cattle are contributing to. Methane output is one piece, but then we've got the methane capture that can happen, and the recycling of methane into the environment, into the water cycles, into the CO2 cycle to plants, and everything. I think that this overemphasis on methane is really driven by the plant-based meat alternative companies, because methane emissions is really the only thing they can win on when. They can't win on less water. They can't win on soil health on biodiversity.

Robb: Land usage.

Diana: Right, yeah. Anyway, so we went to the state of São Paulo's research center, then we went to the Brazilian, it's called Embrapa, and we saw some really cool silvopasture experiments, where they were planting eucalyptus trees in the middle of the pastures, so providing shade. They actually found that the pasture in the silvopasture areas with the cattle grazing was actually ... the soil was actually more diverse than even in the rainforest, just because the cattle action, and the trees are happy, the soil's happy, the grass is happy. Everyone's teeming life.

Robb: We know that grasslands are where the rubber really hits the road in real biodiversity, like rainforests are amazing, but when you really start talking about carbon capture in legit broad spectrum from microbes on up biodiversity, grasslands, oddly enough, are where the real action is, but it's not as sexy to describe that. Then also, clearly there needs to be thoughtful conservation efforts around rainforests and whatnot, but yeah, that's fascinating.

Diana: Right, so they ... definitely the eucalyptus trees were very monoculture looking, and they were doing some other experiments with more native trees, but they're doing all kinds of experiments, which is really cool. The cattle down there are really interesting. They take longer to develop on grass because they're the Brahman cattle, which the genetics are originally from India. They are more heat-tolerant, and more bug-tolerant than your typical Black Angus that we see here in the US. These are the cattle that have the big hump on the back that you see in warmer places. I saw an automatic milking station for pasture dairy, which was really interesting. These cattle cows, just when they need to be milked they just walk up. There is automatic milking happening at some places in the US too with robots, but those are in the confined dairy, this was in a pasture dairy situation.

Robb: Oh, crazy.

Diana: You just pan out, and they just happily walk in, and while it's getting milked they're eating some of ... they've got some food for the animal there.

Robb: Food choice, choice food for them to-

Diana: Right.

Robb: Would to entice them in.

Diana: Exactly. So, if one animal's hanging out a little longer, the other one behind them just kind of nudges just very gently. It was the calmest thing, and there was just this steady flow of mamas getting ready to be milked. Then you look out, and as they walk out of being milked they're just out in pasture, and then they've got this automatic gate opening situation on a rotation, like sort of adaptive multi-paddock grazing situation. They're doing everything that's super cutting edge that I've seen here in the US down in Brazil. They're so lucky down there, it's so lush, and Brazil is feeding a large portion of the world right now, and I think it's going to be the agriculture hub moving forward.

Diana: They're under all this pressure right now too with the Amazon, and so there's this big ... There's been all these articles out from The Wall Street, I think it was The Wall Street Journal or The Washington Post, and then there was another one from the New York Times, all about cattle driving rainforest destruction, and that was another thing I was just going to touch briefly on. It is so much more complicated, and you and I write about this in Sacred Cow, it is not driven by cattle grazing. What's happening in Brazil is when you clear land in this Amazon region, you actually get to own it, and so this is a real estate grab. What they do is, they first clear lumber, and Brazilian hardwood is really valuable, so first they make money off the big beautiful trees, and then they burn it down. After they burn it down you still have all this scrub left and everything, it's not ready for much other usage, and so they bring in cattle to graze it, which is just the best use of the land at that time.

Diana: Some of the cattle do illegally end up in the beef trade. It's not a huge percentage of the beef cattle that it is being exported out of Brazil, but some do make it in illegally, and

then after ... between two, and sometimes 10 years or so, it gets converted to crop land because the cattle have eaten everything down. Then they plant soy, which is highly profitable for soy oil, which goes into ultra-processed foods, and then the byproduct is soy cakes, which go to China to feed chickens. So, it's not cattle driving deforestation, it is a policy issue. It is complicated. There are a lot of people who need money in that area that are doing this, and it's a really hard process to wrap your head around and to fix.

Robb: I don't know if you and I talking about this, or listening to someone else, it all gets kind of muddy, but Europe has already gone through this process. There was the land grab, the expansion, the deforestation, good things and bad things about the whole thing. Clearly that has happened throughout most of North America already, the expansion across the continent, displacement of Native Peoples, grab bag of terrible things, and also what has brought us to modern living. Then we have these areas that are developing, and folks ... There has to be some degree, we have one of a couple of options. We figure out a way of sustainably developing these areas so that people have a standard of living, that then usually drives down birth rate, and then we get kind of a virtuous cycle where people lifted out of poverty, birth rates drop.

Robb: Hopefully, we have some good, long-term things with that, or we keep these people perpetually in abject poverty, or we do some sort of crazy culling of the population of the planet, which some people seem pretty fired up about, and I find horribly appalling. But, there is an interesting kind of ethnocentrism around this whole thing that, "Yeah, we do want there to be conscientious stewardship of these resources, but those are the Brazilian's resources, and those people, and they are trying to figure out how to lift a huge population, a large, mainly young population out of abject poverty, and get to a level of infrastructure, that then provides something better for everybody." Again, we've already, in the Western world, have largely gone through this, and it's just ...

Diana: You're being so diplomatic, because I know ... Yes.

Robb: I am trying to be diplomatic on this, but I think that stepping back and giving ... It's like, "Yes, recognizing that there's going to be changes and there will be sacrifices." This may be really controversial too, but at the end of the day, I put human life above and ahead of all other life, and there's some reasons for that, and maybe we talk about that in a future podcasts. It doesn't mean that we cripple the planet that we live on, such that we become extinct because we totally fucked everything up. But I think that folks need to step back a little bit, and have some understanding that a developing country is just that, it is developing, and you either allow for that process to occur, and try to mitigate some of the downside things.

Robb: A good example is just let it gasoline. Much of the world never went through that process because we finally learned that like, "Okay, this is a Faustian bargain, this is not worth what we're getting for not having knocking and pinging in our engines." We're poisoning our children. We're poisoning our environment. We can't do this. There's better cell infrastructure, and communications infrastructure in most of Central America than where I live in Montana. There's all these awesome opportunities for technological advancement, and understanding of our world to bypass many of the mistakes that we've made, but they're still going to be give and take. There's still going to be challenges with all that stuff, so yeah.

Diana: Yeah, and one of the interesting things, so in Ireland, they want to reduce livestock population by 30%, right?

Robb: Right.

Diana: That doesn't mean that demand for meat is going to go down by 30%. That just means it's going to go to Brazil, or the business is going to go elsewhere. There's going to be more pressure on countries like Brazil to produce meat for Europe, and it then will mean that 30 ... or a large portion of Irish farmers are going to be out of business.

Robb: Right.

Diana: It's so shortsighted, what I see largely coming out of Europe from the anti-meat dialogue, and it is so strong now what's going on there. I did a podcast with Frederick Leroy on the Global Burden of Disease Study, so there's bias coming from science, it's getting into government policy, and it's going to end up where ... Another thing too, I learned from Frank, and I'm going to do a podcast on this, there's something called territorial emissions policies. Basically the country that produces the emission gets saddled with the entire piece of the emission. For example, Saudi Arabia looks pretty carbon neutral because they're not actually burning the fossil fuels, right?

Robb: Interesting.

Diana: But Ireland interesting is producing all this meat, and so Ireland's emissions are really bad, and so what does the government do? "Oh, well we need less beef." It's just messing everything up.

Robb: But that's not particularly fair.

Diana: It's not fair at all. It's not fair at all.

Robb: This is maybe kind of a reach, but another parallel is recycling from consumer goods, like old computers, electronics and whatnot. It's a dirty, messy process that is expensive, has a lot of ecological considerations, but that process has been made so difficult to do in the developed world that it gets offshored to the developing world. There, it gets handled in a way that is incredibly destructive, like kids just using carboys of solvents to pour onto a bucket of wiring to dissolve the plastic off of the wiring, and then by hand pull the copper and silver wires out, and then just dump the plastic-laden solvent onto the ground. Because we have made it so difficult to do this in the developed world, then we offshore it to a place where there is no oversight. There is no OSHA, and this is again, where we have to think about externalities and secondary, tertiary eventualities, "Do you want this shit recycled? Well, we probably should.

Robb: Right now, we have this crazy supply chain issue where it's like, "Man, we should really be taking care of all the rare earth minerals, and stuff like that," that we mine for solar and electronics, and all these things, "Okay, well, how are we going to repurpose that stuff?" Well, it's got to be broken back down and processed, and it can be either an incredibly dirty and damaging process to the environment, or you have a little bit more expensive a process, but we invest in the clean side of it, but you have to allow that to happen. Somebody, somewhere has to be allowed to do a plant that repurpose this stuff, but it actually has oversight. People get paid to do it. There is an OSHA component to it. There's just so many parallels there between that, and then just food production writ large. There is ... If Northern Europe, parts of Northern Europe, which are very amenable for producing grazing animals, are allowed and even incentivized to do that, then there will be less pressure to do what is happening in the Amazon rainforest.

Diana: Right.

Robb: So, this is where that first order thinking carbon tunnel vision is actually worsening a whole host of issues, and it's a lot to unpack.

Diana: Yeah, and what I mentioned on the Joe Rogan podcast too, is that because Brazil needs to, I mean, they are being ordered down to reduce methane emissions. So, these cattle take longer to size up, it's hotter down there, there's bug pressure, they have to use this different breed, it rains a lot and everything. What would normally take in the US to finish on grass takes twice as long in Brazil, because of the different breed and everything else down there, so now they're moving more towards feedlot finishing, which people don't like.

Diana: But the thing is, there is a whole lot of sugarcane production now for ethanol, that's actually from ... From the people I talk to in Brazil, it's working for them, the sugar for ethanol down there, and you can actually choose ethanol only gas or an ethanol mixed gas when you go to the gas stations. But they've got leftover pulp from the sugarcane, which can be fed to cattle, they've got cornstalk and everything that they can feed to cattle, and so as their crop production is expanding, they've got all this crop residue that actually can easily go into finishing these cattle on feedlots in a really rapid way that reduces the methane. It makes them more money per animal than finishing totally on grass.

Diana: People are going to eat meat, and we have to figure out a way to do it, and we have to figure out a way for the folks, like you said, down in Brazil the average income, I'm sorry, the minimum wage in Brazil is \$200 a month. These folks ... When I walked around, I got to see leather production. I got to see biodiesel production down there from leftover tallow. I got to see soap production from the tallow from the cattle. The workers are so psyched in these factories. They're just psyched to have a job. It is so different than looking at a factory in the US where people just aren't as psyched, and they're not as proud to work. It was a tight system, and everyone's just fired up to just be able to make money and-

Robb: Better their situation.

Diana: Better their situation, and so it's just ... It gets so complicated when people are like, "I want only grass-finished beef," when it actually might ... If you're still going to be complaining about methane, and complaining about land usage, well, then they can do that, and upcycle crop residue at the same time, shortening the life, and actually increasing income for cattle producers by feedlot finishing.

Robb: It's just funny, literally where these sacred cows have to go and die, we have these, and I'm probably as guilty as anyone in my Paleo Solution seminar days, where I would extol the virtues of pastured meat, and talk about the omega-3, omega-6 delta, but never did the Mat Lalonde next step, which was, "Well, how much is actually there?" Then when you start quibbling over this notion that you need to eat 8 lbs. of meat to get the same amount of omega-3s as you get from two or three ounces of salmon, then it's like, "Okay, this is not," this isn't the hill to die on. It's actually creating a negative pressure on the system, in such a way that it's limiting the ability to do something that is far better, which is being able to integrate these disparate industries and systems in a highly efficient fashion, that leaves very little waste, is better for the animals, better for people, better for the environment. But we have to let go of what we think is the right answer, and actually just let the science and technology lead the way on it. Yeah.

Diana: And you can still do regenerative grazing before they finish on a feedlot.

Robb: Right, right.

Diana: It can still benefit soil health. You can still do these amazing silvopasture things. They found that not only is it healthier for the soil, but the cows get shade, it's more humane for the cattle because it gets hot down there, to have some shade, but then they're also grazing more because they're feeling less stressed, and they're measuring all of this.

Robb: Probably less water usage because they're not directly in the heat all the time, and all that stuff.

Diana: Exactly. Exactly. I think also, it has to be grass-fed or nothing. I actually wrote about that on global food justice about the elitism of that, because it ends up allowing companies like Beyond Burger to say, "Well, clearly the garbage feedlot meat is ... we can all agree that's unhealthy, but you can't possibly get ... it's so hard to get regenerative meat into schools, but here's our solution."

Robb: Right.

Diana: The Beyond Burger.

Robb: So we are, as a ... I don't know, I guess, we still have kind of a big tent thrown around. Although, it's been fascinating to people, in particular who go after you, they've almost uniformly been white middle-aged women who are attached in direct or indirect ways to ranching. They will go after you like pell-mell, suggesting that there may actually be the ... "If you want to finish them on grass, by all means do that, but don't nuke this other thing over here out of ignorance. Can you actually describe soup to nuts?" This integrative process of ... In that description that you're painting in Brazil, the finishing process is on spent sugarcane from ethanol production, and crop residue-

Diana: Or it might be the orange peels from the orange juice industry, the pulp from that. They are getting some grain too, but the great thing is, the actual grain in towards pounds out over the life of the animal is two to one in cattle. Any basic dietician, if you just, "Okay, two and a half pounds of corn or one pound of beef, what do you think is better?"

Robb: Right.

Diana: End of discussion right there.

Robb: Right. Right. I do want to ... I've been working on, and I guess, I'll let some of the cat out of the bag, but basically this, if vegans were to complain about any element of animal production, this is the one they should complain about. I was actually going to go through and redo is it land usage? No. Is it water usage? No. Is it the ethical thing? Not actually no, because can you raise humans without animal products? Kind of dodgy, and then can you actually have healthy planetary ecosystems without animals? No. So, the one thing that I think is underappreciated in this whole story is the antibiotic inputs that are necessary with a lot of the current animal husbandry practices which ... you're way more the expert on this, but the lion share of that is allocated to poultry and pork production because the way that they are raised.

Diana: Well, cattle do take up antibiotics as well, they're large animals. You get more meat per pound off of a steer.

Robb: Just because of the way it changes their metabolism.

Diana: Yeah.

Robb: So where ... We have mutual friends, John and Britney, who run a roam-free bison ranch here, and with the bison, they don't need to help them with calving, they don't need to ... they never give them antibiotics, they never need antibiotics. My sense is that with like a Joel Salatin or White Oaks Pasture scenario, rare if ever, is there an application of antibiotics. Where, and how does that plug into this story? Because if there was still something that the confined, the kind of CAFO model ends up necessitating to some degree, and again, seems to be it is impossible to do industrial level chicken and pork production without significant antibiotic inputs. There's kind of an expiration date on the utility of these antibiotics, like once all the bugs have figured out how to circumvent the antibiotic's efficacy then we're all super screwed.

Diana: All of us.

Robb: Our concerns about global overpopulation is moot because people will start dying in the hundreds to millions from simple infections.

Diana: Yeah, we have more people dying of sepsis now than before just because of superbugs.

Robb: Because of antibiotic-resistant.

Diana: Yeah.

Robb: Where does that plug into this story then, as far as ... I guess, where is that kind of trade off happening of we're doing a little bit more confined area of feedlot finishing, is that bumping up the antibiotic usage on the cattle side, relative to this kind of idyllic a 100% pasture finished scenario?

Diana: Right. That's a really good question. My understanding is that, in general, most responsible producers are actually reducing antibiotic usage in industrial production, even in pork and chicken, just by cleaning up, by more ventilation, more vaccines, and less antibiotic usage, because people are getting stressed out, they don't want antibiotic usage. That was the conference I went to in Thailand, was about Asia was a little bit behind Europe and the US as far as their reduction. They call it responsible use of antibiotics.

Diana: I did meet with a lot of people that do feed additives, and there's cool stuff going on with tannins, not only does it reduce methane, but it also improves their gut flora, and there's other supplements too, other probiotics, all kinds of stuff that people are playing around with, and experimenting with to help animals gain weight, and that's one of the reasons. I didn't know this before we started doing the research for Sacred Cow. I thought it was just to keep them from getting low level sick all the time. I thought they were all stressed out, and they just needed this low dose antibiotics to just survive, but it's more that it alters their gut flora, and increases weight gain through dysbiosis. Which I think is really interesting when you look at Americans and you think of our dysbiosis, the majority, I'm sure, of humans, have altered gut flora not in the favorable category, which actually, on top of over consumption of ultra-processed foods, but that combination of acellular carbohydrates altered gut flora, overuse of antibiotics, that's just like a storm waiting for people to gain weight.

Robb: Right. Right.

Diana: That's my long-winded answer too. I'm not really sure what's going on. I'm assuming, "Yes, they have to use more antibiotics when they increase feedlots," but I didn't talk specifically with them about it, but I do know that what I saw was how do these additives ... Right now, they're just so focused on methane, that's just like the number one issue for everybody right now, is reducing methane, or else they're going to have to get rid of their livestock.

Robb: Right. Right. Or they could just put a giant finger in the air and be like, "We're not buying into this," but I guess that's not going to work currently, but it's interesting. Bret Weinstein and Heather Heying of the DarkHorse Podcast, they have a great term, and other people have talked about it, it's the tyranny of metrics. It's when you can track a thing, and I see this with aura rings, and all kinds of stuff, people will start tracking things and they think that that is super important, and sometimes it is, and sometimes it's a boondoggle.

Robb: It's hard, bordering on sounding crazy to say that this focus on methane and carbon emissions out of animals is really not the place to look. I would argue if we could run an AB test, if we could create parallel universes, and in an alternate universe we're able to convince people, "Don't even fucking worry about that, just optimize for economic development and growth, with an eye towards something that could be here 5,000 years in the future so you can grow and develop, but it has to be in a way that society and the world could go on for 5,000 years." The carbon issue is going to be a non-issue in this alternate world, but it is the singular issue here, which might mean that that is the flame that is attracting all of the moths to it, just circling until we collapse from fatigue, and we don't actually do the shit that we need to do to address the real problems.

Robb: The funny thing is that either ... I think it's a mix of dumb luck, and also some crafty marketing and opportunism, but the kind of industrialized food distribution world owned by five or six giant companies, this carbon tunnel vision plays to their strength so well. It so does not play well to a decentralized kind of libertarianist view of food, and food sovereignty, and self-sovereignty, and self-governance, and all that type of stuff. It provides this external lever that it's like, "We can come in and exert all kinds of influence on you," probably for not that grave reason, but something that you look like a crazy person arguing against it, but it may literally be like blood letting or something. Leeches appear to provide at least some benefit under some circumstances, and this, I'm going to argue is not, even these efforts.

Robb: I would be so interested to understand a little bit more of the organic and the biochemistry. If they're mitigating methane release, then they must just be enhancing carbon dioxide release, because those carbon molecules go in, and they got to come out some way, somehow, somewhere. So, is it just being released as carbon oxide versus methane? The methane is a more potent greenhouse gas straight out of the gate, but it also has about a 10-year half-life, and then it get laced into water and carbon oxide via photoreactivity and whatnot, so it's like, "Are we really winning? How much net infrastructure is necessary to go get the seaweed, and the cinnamon, and the different things to put into the animal feed to create this delta of methane here versus methane there?" I don't know.

Diana: Well, basically their whole goal is, how do we finish these animals as quickly as possible? Because the longer they live, the more methane they produce, and how do we get them to be as efficient with their feed as possible? Because they noticed that some animals just aren't as efficient and they'll just be eating and eating, and eating and not gain-

Robb: And not really gaining weight.

Diana: As quickly as some of the other ones, so if they can get the animals to gain as fast as possible, to be able to reach the right weight as quickly as possible, then that means less methane and more money.

Robb: Right. Right.

Diana: Are they bad for that? No, because they're getting all this pressure to do that, and that's what everyone's demanding right now, and so that's just what the market is right now.

Robb: Right. Right. Interesting. Interesting. Well, so you've got some additional travel coming up. Do you want to let folks know about that? Are you going to-

Diana: Yeah, yeah. We have couple more minutes before, I guess, we have to go. That was our whole update with Brazil, but yeah, I'm heading ... I just got back from Kansas city, I was doing an animal welfare conference there. It was super interesting. We were talking about what to do when protestors hit your farm. It was really fascinating what are the protocols that farmers have in place, how to get those protocols in place. Then next week I'm headed out, and I'm not sure when this podcast is going to come out, maybe even while I'm in England, but I'm going to Knepp Castle Estate, which is a rewilding project with cattle. The book Wilding by Isabella Tree, she lives there, she lives in this beautiful, kind of like Downton Abbey-looking castle with her husband, and it's pretty cool. I've been invited to consult with them. They're opening a store, and I get to visit and hangout at this castle.

Robb: Awesome.

Diana: Then I'm doing that Health Optimization Summit, and then I'll be in Wales at Patrick Holden's farm. He was in the film, and so I'm learning what not to do in Wales, like not call them English. You don't do that in Wales.

Robb: Right.

Diana: I'm learning. I'm learning. Then I'm home for a little bit, and then back in England again for Groundswell, and then ... which is a regen ag conference in June in England, and then I'll be in Australia and New Zealand for the large chunk of July, so it's kind of exciting.

Robb: Awesome.

Diana: Yeah, it's a lot of travel.

Robb: Awesome.

Diana: And you're in Puppy Land in Montana.

Robb: I'm in Puppy Land in Montana, and I'm going nowhere. Actually, I may be going to the CrossFit games, oddly enough. Some interesting things have happened, and I seem to have reunited with my old clan in CrossFit, and I'm doing a little bit of work for them. It looks like I may be doing at least some of the continuing education for their nutrition certification stuff, so hell hath frozen over, and third time's a charm working with CrossFit again.

Diana: Wow, that is full circle.

Robb: It is. It is. It's wacky. It's wacky.

Diana: Yeah.

Robb: The next chapter to the book.

Diana: That's awesome.

Robb: Yeah.

Diana: In LMNT, everyone's doing well with LMNT?

Robb: Everybody's staying salty. Grapefruit is, when this thing goes up, Grapefruit will be out in the wild, that is our seasonal flavor. Limited time only. Last year people thought we were fucking with them when we said it's limited time only, and nope, it's here and then it's gone. It's not like, "Oh, when we found the secret stash and everything," it's like, "No, once it's gone, it is in fact gone." So, if you like grapefruit, order large and...

Diana: Yeah, I've been loving it. I'm drinking it right now.

Robb: Nice.

Diana: Anson has been using ... He needs more LMNT stickers for his surfboards.

Robb: Just let me know, and I'll ... I know a person who knows a person so we can make that happen.

Diana: Yeah. Awesome. Well, it was great to see you, and have a great summer, and I'm sure I'll be chatting with you here and there, but it's nice to catch up formally on the podcast.

Robb: Good to catch up, and thank you again for the work that you're doing. I know that I can't say it enough. You have worked so hard in this space, and have really taken a lot of slings and arrows, and a lot of vitriol for just trying to create an opportunity to have a discussion around these topics. I'm heartened by the reality that there is a very big world out there, and people who can't get swept away with all the kind of screwiness on social media and whatnot, and that they actually have to live lives. They have to figure out how they're going to support their families, and make their communities work, and make their world work, and that they're trying to innovate and do the right thing. Again, I'll pat myself on the back a little bit, that the developing world is where I think a lot of this stuff is going to get vetted out, and they're looking to people like you for that expertise to get the broader picture, to be able to weave all this together. I'm super stoked about it.

Diana: Yeah. Cool. I definitely think I'm going to be doing some more work with Brazil, and I'm really ... I'm impressed and excited, and also supportive of what's going on down there.

Robb: Awesome. Cool.

Diana: All right.

Robb: Well, Diana, take care, we'll talk to you soon.

Diana: All right.

Nicki: All right, thanks everyone for tuning in again, to another episode of Salty Talk. Any closing thoughts you want to add, hubs?

Robb: No, just again, encouraging people to think deep about this stuff. I've spent a lot of my CPU cycles over the last 10 years thinking about regenerative ag, and trying to educate myself about this. We wrote a book. We did a movie about it, and I continue to learn, and what I learned more than anything, and I'll pat myself on the back a little bit, predictively, is that so much of this story depends on what's happening at the local level. The movement towards trying to consolidate everything at this World Economic Forum, World Health Organization level is going 100% the wrong direction, consolidation at a ever higher, ever ... further removed from local level is going to make things disastrously difficult to change and implement.

Robb: We talked a little bit in the podcast that Ireland is moving to coal up to 30% to 40% of its cattle herd because of this climate change topic, because they're being saddled with greenhouse gas emissions. There's an irony there that Saudi Arabia, which is where a huge amount of oil is extracted, is not saddled with a carbon footprint bill, because the carbon isn't used there. Even though it's extracted there, because the oil is then distributed around the world, everybody who's burning the oil from Saudi Arabia is the one that is saddled with that stuff. So, Saudi Arabia looks rather pristine with regards to its total carbon footprint, even though it's mining carbon out of the earth, and then distributing it around the world.

Robb: Again, I think that there's just a ton of tunnel vision, and lack of nuance around the way that all of this is being handled. But the United Kingdom, parts of the United Kingdom are sacrificing huge important pieces of their food sovereignty due to the tyranny of metrics, and this kind of goofy view of biogenic carbon being a big deal. Nikki's going to start coughing because her cold is rearing up, so I'll shut up. Those are my thoughts.

Nicki: Hope you guys enjoyed this episode.

Robb: Hope you guys enjoyed.

Nicki: Remember to check out our sponsor, DrinkLMNT at drinklmnt.com/robb, and have a fabulous weekend. We'll see you next week, and hopefully it's sunny where you are. We're getting a ton of rain, which we're very grateful for, but we are ready for the sun.

Robb: We are.

Nicki: Bye everybody.

Robb: Bye.