

Earth Day Bonus: How to Fix the Global Food System and Save The Planet – Dr. Mark Hyman

Mark:

Our food system end to end is the No. 1 cause of climate change, which is a big shock for me when I started writing this book. I was like, "Oh, yeah, greenhouse gases, cow farts, cow burps, methane," and all that. I got that 14%, whatever the estimate is, but when you add it all up, the deforestation, the soil erosion, the factory farming, the processing, distributing, transport, refrigeration, food waste. You add it all up, it's almost 50% of our climate change contribution, more than oil. We need to think about multiple types of solutions.

Announcer:

Bulletproof Radio, a state of high performance.

Dave:

Now, today's guest knows a thing or two about food systems and health. He's a dear friend who's been on the show several times, a 12-times New York Times bestselling author who makes little old me look like just a piker of an author. If you don't know what a piker is, you'll have to Google that. Someone who's really done some powerful work to change the world, a family physician, Director of Functional Medicine at the Cleveland Clinic, and I think you've by now guessed who I'm talking about. I'm talking about Dr. Mark Hyman. Mark, welcome back to Bulletproof Radio, my friend.

Mark:

Thanks, Dave. Always good to be with you.

Dave:

Now, you've wrote a new book, which is something I love because I started Bulletproof with the intent of disrupting big food. They're just like big pharma or our military industrial food complex or something like that where I don't believe that people set out to do evil, but I do believe that emergent behaviors from micro-decisions have created some pretty profoundly bad food, and you've after 12 books, years, actually decades in practice, you've actually sat down and said, "All right. As a doctor, fixing our food system is going to fix our health, fix the economy, fix communities, restore the environment."

Dave:

So, I want to talk to you about that because we've never hit it on the show. We've talked about what to eat, what not to eat, all of your body of work, and this is the time to go into, "How do we hack the food system that's hacking us?"

Mark:

Yes, yes, exactly. That's really well put, Dave. We are in the middle of probably the biggest crisis humanity has ever faced and a large part of it has to do with our food system, and the reason I got to that conclusion was as a doctor, I sit in my office, and I see patients with chronic disease day in and day out, and as a functional medicine doctor, I'm always asking, "Why? Why are my patients sick," and for the most part, not always, but for the most part, it's food.

Dave:

It's because they're lazy.

Mark:

It's because they're lazy and-

Dave:

They're fat and lazy. Didn't no one just tell you this?

Mark:

[crosstalk 00:05:22].

Dave:

They're not trying hard enough, and they should be in the gym for two hours. Come on, man.

Mark:

No, three hours.

Dave:

All right. It is about the food obviously.

Mark:

It's actually the food, and it's the lack of the right foods and too much the bad foods. So, I begin to ask myself, "Well, if food is making my patients sick," and also it's what makes them well. I mean, food is both the cause and the cure for almost everything that's wrong with our health and the world. I asked myself, "Well, why do we have the food we do?" I was like, "Well, it's the food system," and I'm like, "Well, why do we have the food system we do?" Well, it's our food policies.

Mark:

I'm like, "Well... " I'm always asking, "Why, why, why? Why do we have our food policies?" Well, it's the food industry. I mean, this, for example, in one year, 2015, the food industry spent almost \$200 million lobbying against one bill, which is the anti-GMO labeling bill, and that's a striking amount of money. So, I'm like, "Wait a minute. So, if our food system is so screwed up, it's driving all these issues," and then not only health. As they begin to go down the rabbit hole, I was like, "Wait a minute. If food is not only making people sick, it's also destroying our environment. It's causing climate change. It's causing social injustice. It's threatening our kids' academic performance in school, their future productivity and success, our global competitiveness, our national security because kids are too fat or unfit to fight, leading to poverty, mental illness, violence."

Mark:

I mean, I was like, "Wait a minute. This is extraordinary because if this is true, if food is the cause of all these things, then the good news is we can fix the food. We can fix all these things that are downstream from the food," and I can unpack all that for you, but it hit me like, "It's an elegant solution." When you get to the root cause, it's like pulling on that one thread that connects everything, and if you solve that, you don't fix everything, everything in the world, but you fix so much of chronic disease, probably 80% of it.

Mark:

You fix the burden on the economy, which is crippling us. You fix the climate change, which is the number one cause of it, which is our food system. Kids start to learn and function better in schools. You bolster our national security because kids can join the military, and it just goes on and on and on. I'm like, "This is just a beautiful solution," but it took me a while to unpack all of the interesting connections that are linking all these things together.

Mark:

It's really one problem. It looks like separate problems, and that's really what functional medicine is. People come in with 10 or 20 different symptoms or diseases, and you go, "Wait a minute. It's this," and then you narrow it down to what the root cause is.

Dave:

Mark, you and I have both had a chance to meet with... I'm not going to call out specific names, but the few remaining low-fat mafia doctor nutritionist types, they're actually not nutritionists. They're just doctors who are in league with some of the very large sugar and corn syrup, water companies out there, who there is a payment that goes between these companies saying, "No, it's about the calories. Just eat some low-fat, plant-based corn syrup, and you'll be just fine because it's plant based." That kind of garbage. Knowing full well that real plants are good for us, and that this stuff isn't.

Dave:

So, we both talked with people like that, but I've also met with those same executives, not necessarily the doctors pushing it, and privately, they'll say, "Look, we know that our stuff isn't that good for people." So, our job is to make it less bad for people because we know that someone's willing to spend a nickel, and if we don't provide something for them at a nickel, even if it's crap, well, someone else is going to provide it for them for a nickel because they've got to eat.

Dave:

If we can get them to spend six cents, we would gladly make it a higher quality food. So, it feels like the problem is just that, "Look, there's a great number of people out there who don't have the means or don't have the training and education to buy the six-cent thing versus the five-cent thing." So, is this a demand problem or is it a supply problem?

Mark:

No. Listen. I mean, the real cost of what we pay at the checkout counter is not the cost of the food we eat.

Dave:

That's true.

Mark:

Like the products we pay is not the cost we pay, and let me just unpack that for a minute because the first chapter of my book Food Fix goes into what the true cost of food is. It's called true cost accounting, and people call it externalities. It's not really an externality. It's actually part of the problem. It's embedded in the actual production, processing, marketing, distribution, sale, wasting of our food. Just

take for example, when someone buys a can of soda with high fructose corn syrup, let's just talk about the real cost of that.

Mark:

The cost to our environment because of how we grow the corn using pesticides and herbicides and fertilizers, and what is the cost of all that? Well, cost in human health, the cost of biodiversity, the loss of 75% of our pollinator species, construction of the soil through the tilling methods. We've basically lost probably 30 to 40% of all of our topsoil through erosion, which releases a carbon in the atmosphere.

Mark:

So, 30 to 40% of all the carbon in the atmosphere, the CO₂ in the atmosphere, comes from the soil, and it can go back in there using regenerative agriculture, which is one of the solutions. So, what is the cost of the loss of that? I mean, some estimates by the UN said we have only 60 harvests left of soil, which means no soil, no food, no humans. So, what is the cost of that? What is the cost of the irrigation and the water depletion of our natural freshwater resources?

Mark:

So what is the cost of climate change that's a consequence of all that? How do you pay for that? What is the cost then once you... When you make the corn, it gets turned into ultra-processed food, high fructose corn syrup. The government pays for it again through the food stamp program or SNAP. So, 75% of the food stamp program is processed food, and about 10% or \$7 billion is soda. That's 31 billion servings of soda for the poor every year. Coca-Cola is the biggest welfare recipient in America getting most of those dollars.

Mark:

A billion is like 20% of the American revenue, I think. We pay for the illnesses caused by the consumption of those foods through Medicare and Medicaid. So, we're paying for subsidizing the corn being grown. We're paying for the destruction of the environment, which you talked about in climate. The chronic, they're paying for it again by providing it to the poor, 46 million Americans, and we're paying it for again through Medicare/Medicaid. So, what should be the cost of that soda? Maybe \$100 or \$500 when you embed all those costs because the manufacturer's not paying for it.

Mark:

When GE dumped so much PCB to the Hudson River, they didn't pay for the environmental consequences of that, but they were held to account later by my friend Bobby Kennedy where he got them to spend literally over a billion dollars to fix the Hudson River and clean up the PCBs. So, those costs should be embedded, and that's actually not fair. So, maybe if you have actually a whole food that's grown in a regenerative way instead of being 40% more than it was 30 years ago, it should be 40% less. So, maybe fruits and vegetables should be cheap, and you have to pay a lot for your Coca-Cola, and that's part of the problem and with that said, there's a lot of ways that people can eat well for less, and you don't have to actually eat junk just because you don't have enough money.

Mark:

There's plenty of data that's showing that you can eat well for less, that you can eat a whole foods healthy diet. Maybe you're not having a \$70 grass-fed ribeye steak, but you can eat real food that's unprocessed and do well for less, and there's a great guide by the Environmental Working Group called

Good Food on a Tight Budget, which teach you how to do that, and I've seen it. I've worked with families on disability and food stamps and helped them lose hundreds of pounds in the worst food desert in America simply by giving them the education on how to do.

Dave:

It's definitely doable when you get off the processed food, and I mean you're singling out Coca-Cola, which probably isn't really fair to be perfectly honest.

Mark:

[crosstalk 00:13:28]. It could be a Starbucks Frappuccino with all that sugar.

Dave:

Yeah, it's systemic, and I'm really stuck on this because I run a sizable food... I mean, not sizable by Coke and Pepsi and Procter & Gamble and all those guys. Those are many billions of dollars, but Bulletproof is a lot bigger than I ever expected when I started the blog eight years ago, and I've had a chance to look at grocery distribution. I know how much stuff costs, and I know how much it goes for on the shelf, and I know what a tiny, tiny slice of that actually goes back into profits for Bulletproof compared to paying all the people in the middle.

Dave:

So, I look at just the difficulties of this and when everyone that's out there going, "We want to make better stuff," but we're afraid people won't buy it and actually people won't buy it unless it's cheaper, but the actual costs of buying it is still higher for a manufacturer certainly like me. If I was to do that garbage chicken industrial collagen that you can buy that looks all fancy that isn't good for you, if I do that, I could cut my costs in half, but I'm not going to you but either people don't know or people want to do it. So, as creators of food, how do we solve this problem?

Mark:

Right. It has to be solved through incentives and tax incentives and other kinds of penalties for doing the wrong thing. Just for example, there's a great company called Indigo, which is relatively a new company. It's through very sophisticated metrics, tracking regenerative farms-

Dave:

I love that.

Mark:

... and how much soil they build, the ecosystem services they provide, and paying farmers for the benefits that they're creating for the environment-

Dave:

Wow.

Mark:

... and if they're providing climate. So, once we start to accelerate these things, and that's really why I'm building a whole Food Fix campaign to drive policy change because it's got to come through business

innovation, but it's also got to come through policy change. If we keep the status quo in policy, it's going to be very difficult.

Dave:

Now, I live on a 32-acre permaculture farm. I've been building soil like a madman. We just got a shipment of 12 pigs yesterday of little tiny piglets, and they're going to go clear some of the lands that used to be a gravel pit that we've restored, and they're going to clear the brush that's been going on there, and we're actually putting on feet of topsoil based on this amazing thing called animal poop. So, I'm living what you're talking about here.

Dave:

I live in an affordable part of the world on Vancouver Island. So, I can do that. Property here is a tiny fraction of what it would cost if I lived in most of the parts of the U.S. where I've lived.

Mark:

Yeah, I have a little 800 square foot box here in New York, and I don't own it, but it's like a million and a half dollars square box for 800 square feet.

Dave:

You have a window plant there with some herbs. You're totally doing it. So, most of us can't actually go start a farm, but I wanted to experience this, so I'm really in alignment with you here, Mark, and I'm actually starting to make food for my community. If you go to a local grocery store, you might find some Asprey farm's pork or lamb or something, but the distributed production of food is something that was common.

Dave:

There's pictures during just the 1930s during the Dust Bowl. People in New York City had little window, like little balconies with goats. They'd have one goat, and they'd feed the goat their scraps, and then the goat would make them milk and cheese. I'm not even kidding. There's whole skyscrapers, but all of our distributed food production is gone, not gardens. Their backyard, they spray it with Roundup once every three months and put in some AstroTurf. Are we going to go back to distributed food production?

Mark:

I think we have to start looking at all different kinds of solutions. We may still need some big farms, but the data is really clear that smaller farms can be more productive, provide far more profits for farmers, can provide ecosystem services, can provide better food at lower costs. So, I think that the data is really clear, and I think this is one of the key solutions.

Mark:

So, yes, food... I want to pack this. For example, so, the food system is providing ultra-processed food at scale. We've got 60% of our calories in America coming from ultra-processed food. For every 10% of your calories, it's ultra-processed food. Your risk of death goes up by 14%. Globally, 11 million people die every year from ultra-processed food and none of good food. I think that's an underestimate, actually. I think it's probably more like 30 or 40 million. It's the majority of deaths that happen in the world every

year are caused by our diet. It's far exceeding smoking and other causes like more violence. So, that's a huge issue.

Mark:

Second is the economic issues around that are so massive that we don't really understand them. We vaguely get it, but what if of every \$5 in our economy is for healthcare, for mostly chronic disease? That's not sustainable. The Medicare trust fund is going to run out of money by 2025. About one in two dollars of the mandatory federal spending in the federal budget in 2025 is going to be for Medicare. I mean, it's one of every two federal dollars is for Medicare. That's crazy, and that's because of chronic disease.

Mark:

So, these are all things that are happening as a consequence in our food system, and the other issue is the environmental issues, right? So, the climate change issues that have to do with the fact that our food system end to end is the number one cause of climate change, which is a big shock for me when I started writing this book. I was like, "Oh, yeah, greenhouse gases, cow farts, cow burps, methane," and all that. I got that 14%, whatever the estimate is. When you add it all up, the deforestation, the soil erosion, the factory farming, the processing, distributing, transport, refrigeration, food waste. You add it all up, it's almost 15% of our climate change contribution more than oil.

Mark:

So, I began to connect the dots on this and go, "We need to think about multiple types of solutions." So, yes, we do need to solve all these problems but in a sense, it starts at the farm, and most of the world's farms are small farms. They're small farm holders. Billions of these farmers and billions of farms that are producing most of the food for the world, and when we look at the technology available now, it's not going back to the old days because we used to have screwed up agriculture. We used to destroy the land and move on to the next land. There's no more land to move on to. That's the problem now.

Mark:

So, we need to rethink it, and that's this whole new concept of regenerative ag, which incorporates organic, but it goes far beyond that into providing ecosystem services because with an organic, you could be killing. You could use all kinds of other stuff. It's water irrigation, deplete the soil and not be as bad but certainly be a problem. So, I think the answer is we do need distributed farm systems. We need more local, more smaller farms. We need more regional farm system and food hubs, and we need to be able to support those through farmers' markets, community smart agriculture, community gardens, our own gardens, support composting. I mean, San Francisco's made mandatory composting.

Mark:

Now, you can't throw out your food waste. You go to the airport in San Francisco, and you've probably seen it. It's like compost buckets in the airport, and that should be in every city and every town in America. So, we have to think through multiple solutions, but we do need to reimagine farming.

Dave:

Are we being a little simplistic here? I mean, I am a pretty darn good composter, and that just like in your gut, if you eat certain foods, your gut bacteria go crazy, and you put certain things in your compost, and it's not going to actually make soil that you'd want to grow food in. For instance, all the

compostable food containers contain chemicals that are toxic and ruin the soil for food production, and do you really want compost that's made out of industrially processed mayonnaise and corn syrup and NutraSweet?

Mark:

No.

Dave:

Because that's what people are putting in the compost. That doesn't grow soil.

Mark:

Really? Really?

Dave:

Absolutely. All the crap that people actually eat, the processed airport food crap, which is some of the worst. They put it in the airport compost. So, if someone tried to sell me city composts.

Mark:

Oh, that's a problem. That's a problem.

Dave:

I would actually be like, "No, I'm sorry. My sheep can't..." "

Mark:

Well, I think there are-

Dave:

What are we going to do?

Mark:

There are good ways to do compost. I think that's one.

Dave:

There are, but in other words, it means don't put your McNuggets in the compost because they will never decompose properly.

Mark:

It's made for a plant-based food scraps pretty much.

Dave:

Exactly, right. If you put a bucket of bacon grease in there, it's not going to work either. So, I feel like our kind of, "Oh, we're going to recycle this," and you go to the dump, and there's square miles of recyclable plastic that just got thrown in the dump, and then the compost is basically not composting because it

was put together wrong, and you realize we're in trouble because if we don't eat stuff that will spoil, we will not be able to make soil out of it either.

Mark:

Yeah, for sure. I mean, that's a fair point, Dave. The truth is that composting is a huge solution to food waste, and we need to do it right. So, because some people do it wrong doesn't mean we shouldn't do it. I think-

Dave:

I fully agree. It comes out of it to be additive to our soil, and Dr. Mercola who's been on the show a few times, I know you know him as well. He just did a big piece on here's the chemicals in our compostable food stuff, which by the way is probably still better than the plastic stuff that floats in the ocean, but it feels like when you go really deep into your book on Food Fix, yes, we need to distribute in production, and I have another policy question for you on that. You look at food safety regulations and recently, there was a war on backyard chickens because some people got E. coli from licking their chickens and things that no farmer should ever do.

Dave:

So, they actually did a whole bunch of stuff, so all of these E. Coli and Salmonella outbreaks, they're coming from small farmers, small firm, take that away. We're not going to allow that anymore, and how do we handle this incredibly high regulatory burden in order to sell a piece of chicken or in order to even sell a carrot for small farmers who can't handle that?

Mark:

That's a good point. First of all, nobody should be licking their chickens.

Dave:

I agree. It's gross if you've ever seen a chicken. Yeah, don't lick your chicken.

Mark:

Don't lick your chicken. Finger-licking good, but no chicken-licking. So, your point is very well taken, and this is exactly why a lot of the book is focused on food policy because our food policies are driving so much the problem. For example, a farmer who has a 5,000-acre soy monocrop says, "I want to grow a cash crop of vegetables on my land. I want to take five acres, my 5,000, and I want to make it a vegetable farm." He can't do that, or she can't do that. Why? Because the government will not provide the crop subsidies and supports for the farmer if they grow vegetables.

Dave:

Yeah.

Mark:

I mean, the government tells us to eat half of our plate is fruits and vegetables, half. When you look at the amount allocated in the farm bill, it's 0.45%.

Dave:

What's the rest of it? There's meat and milk?

Mark:

It's corn.

Dave:

Oh, that's not a vegetable. Gross.

Mark:

It's soybean oil. It's like basically if your plate look like the plate that would be represented by the farm subsidies, it would be a giant deep-fried corn fritter with less than half a percent of your plate as fruits and vegetables, maybe one string bean and-

Dave:

On top of your giant corn fritter.

Mark:

And you'd be having a giant napkin because of the cotton subsidies. Giant cotton napkin. It would be pretty bad. There'd be a little bit of milk.

Dave:

That's pretty horrifying as a picture. So, basically, it's a giant fried corn fritter with the strip of cheese on top and a decorative sprig of parsley.

Mark:

Yeah, basically. That's it.

Dave:

Oh my God.

Mark:

That'd be a healthier food pyramid. That's the new MyPlate. That's what it is. So, all the policies we have are... Some of them were designed by good intentions. Some of them came about because we were trying to create a food system that provided an abundance of starchy calories to feed a growing hungry population globally in the United States. The use of chemicals was thought to be an advance and would help increase yields and production and help control pests and weeds. Sounds great, but nobody foresaw the unintended consequences of that and not even those consequences, which is horrific but the fact that in 1960, a year after I was born, the obesity rate in America was 5%.

Mark:

Now, most states are at 40 or pushing 40%. That's an eightfold increase in my lifetime in obesity, and that has led to this catastrophic burden of chronic disease. It's crippling our economy, and I think that's something that we can't overlook any longer. This is a chronic disease epidemic. It's come on lightning

fast in human history. I mean, think about it. In 40 years, just since I graduated medical school. I mean, when I graduated medical school, there wasn't one state that had an obesity rate over 20%.

Dave:

Wow.

Mark:

Now, there's not a state that has it under 20, and most don't have it under 30, and most have it close to 40% obesity, and that's on top of 75% of us who are overweight. So, it's pretty frightening, and I think we have to look towards these unintended consequences and policies, and they're all siloed. So, all the agencies, and I talk about this. All the agencies in charge of various food policy don't work together. So, the USDA says the farmers grow commodity crops, which turn into processed food.

Mark:

At the same time, another part of that agency, the dietary guidelines says, "Don't eat that stuff. Eat fruits and vegetables," but then the FTC that regulates marketing says, "Well, we're going to promote these. Allow you to promote these on the air and market the worst foods on the planet to kids who don't know how to protect themselves, and that's okay," and then the FDA was like, "Well, we're not going to really control the food additives because they're all generally recognized as safe even though most other countries have banned them."

Mark:

Like azodicarbonamide, which is our friend Vani Hari, the famous yoga mat [inaudible 00:27:52] in Subway bread and many other fast food companies. In Singapore, if you use that chemical in food, which is still used here in America, you get a \$450,000 fine and 15 years in jail-

Dave:

Wow.

Mark:

... as a food manufacturer. I mean, you get jailed for spitting on the street too there, but just the point is they're not protecting us from these chemicals in our food. I mean, there was I think 110 or something petitions filed against the BPA Act, which is basically to get BPA out of our food, Bisphenol A, which is highly toxic, causes obesity, cancer and many other things, and there's so much lobbying that it never passed and still in our food supply, and I mean the fact that they allow antibiotics in the feed. I mean, they-

Dave:

Yeah, glyphosate. It was just re-approved last week.

Mark:

Oh, yeah. Well, that was the EPA. So, there's an interesting story. So, Kellogg's, good news. The good news, things are happening, right?

Dave:

Yeah.

Mark:

Kellogg's said, "No more glyphosate in our cereals," because they got outed having more glyphosate than vitamin A and vitamin D in their Cheerios.

Dave:

Oh, but you know what? Good for them. I got to give them credit for that.

Mark:

Absolutely.

Dave:

It requires that sort of thing like, "Hey, we won't buy this, but farmers will change, yeah."

Mark:

That's right, and then General Mills committed a million acres to regenerative agriculture. Danone and Nestle and all these big companies are starting to have regenerative agriculture.

Dave:

Yeah, that makes me really happy.

Mark:

All these are driving down the stream, but the government has to support that, and then the FDA also doesn't really deal with the fact that there's 37 million pounds of antibiotics used in this country, and 30 million are used for prevention and growth promotion in animals.

Dave:

This is why I just flat out... I mean, you wrote a really popular post a while back on the Pegan diet, paleo and vegan. Hey, eat mostly plants, little bit of meat, don't eat industrial meat. You and I, 100% alignment. That's been my recommendation since 2011. So, if you eat an animal-based antibiotics, number one, you're a bad person. Even one time, you don't go to the restaurant, "Oh, this one time I'm going to do it." Just seriously.

Mark:

You're a bad person.

Dave:

The animal was tortured. You ruined the soil. It's like peeing in your sandbox. You don't do that. Go vegan before you eat industrial meat. You have to do this if you want to be [crosstalk 00:30:07].

Mark:

Wait. Did Dave Asprey say, "Just go eat vegan?" Oh my God.

Dave:

I did indeed. I always order a vegan meal, which by the way would include that soy corn thing. I won't eat that either, but I will eat a plate of just vegetables before I'll eat an industrial animal because I don't do that. So, it's that big of a deal, so we all need less meat, and you call that out, but if we all went to a vegan diet, what would happen to our soil?

Mark:

Well, that's a very good point, Dave Asprey. So, here's the deal. Whether you are vegan, or you're a Buddhist monk, or you're a carnivore, it doesn't matter. Animals are required to actually build soil. It's just a fact of the ecosystem.

Dave:

Does this mean vegans are eating-

Mark:

[crosstalk 00:30:50].

Dave:

You're eating animal poop if you're a vegan?

Mark:

Well, no. I mean, no. Actually, honestly, if you eat regeneratively raised grass-fed beef, you'd be killing a lot less animals than if you ate vegetables. Why?

Dave:

0.3 deaths per year. I did the math.

Mark:

Well, actually, there's seven billion animals estimated that are killed every year by growing plants. How? Well, when you do any kind of agriculture except regenerative agriculture, it's inherently destructive. So, you're destroying the habitat of some birds, of moles, of rabbits, of gophers, of all these insects.

Dave:

Turtles and bunnies and butterflies.

Mark:

Yeah, all those seven billion animals-

Dave:

All the cute ones.

Mark:

... die every year from growing vegetables. I went to the rooftop, the Brooklyn Grange, the biggest rooftop farm in America I think, and it's this beautiful organic vegetable thing. I'm like, "Wow. This is

amazing. How do you take care of the soil up here on the rooftop?" They said, "Oh, we put in bone meal and oyster shells." They're really putting Roundup carcasses from feedlot cows. I said, "So, your broccoli is a carnivore. Your broccoli is a carnivore."

Dave:

Living on a farm will teach you that very, very quickly. The places where the animals poop, the grass is green, and it's unirrigated, and the places where the animals can't go because there's a fence, the grass is gray. It's so obvious.

Mark:

Really, it's so obvious, yeah, but there's actually so much data about this, and most people don't understand what a regenerative farm is and what it is. So, let's just unpack it because it is really the solution and think about, "Why is the doctor talking about farming?" But actually when I was in college, I studied soil. I studied organic regenerative farming. We didn't call it that then. We called it biological agriculture, but it was all about how soil is such an integral part of our whole story.

Mark:

I mean, Albert Howard who was the father of organic agriculture wrote a book in 1947 called *The Soil and Health*. He said, "The problem of health in soil, plant, animal, and human is one great subject. It's one subject," and I think that's such an important thing, so it has to start at the farm with the seeds we put in, with the way we farm, the chemicals we use or don't use, with the water we use or don't use, with the animals we use or don't use, and how that can actually turn the tide to create good food that's going to solve all the downstream problems we talked about.

Mark:

So, what is a regenerative farm? Essentially, it's a method of farming that restores ecosystems. There's a concept that's really cool that I came across called ecosystem services. The earth provides to humans every year about \$120 trillion of ecosystem services, natural resources, soil, water, et cetera, et cetera, and we don't pay for that. We just take it, right? On a regular farm, you're using up eco. You're using up soil. You're using up water. You're destroying the biodiversity of the soil. You're killing the pollinator species, et cetera, et cetera.

Mark:

With regenerative farm, you're adding ecosystem services. You're restoring soil. You're conserving water. You're increasing biodiversity. You're increasing the complexity of the microbiology in the soil. You're actually creating a wonderful set of additions, not subtractions. Gabe Brown who's a regenerative farmer in North Dakota had this 5,000-acre farm. He had this family for generations, and it was basically about to close because it was damaged by hail and weather and so forth. He goes, "I want to do something different." He started regenerative farm.

Mark:

Now, he's [inaudible 00:34:09] 29 inches of soil. He conserves water, barely uses it and call it dry farming. He doesn't use chemicals. He doesn't use fertilizers. He says, "I make my own fertilizer by my animals integrated into the whole ecosystem of the farm. I'm more productive to produce more food in my land. I make 20 times the profit of my neighbor. I'm completely resistant to drought and floods

because my soil holds water." Regenerative agriculture leads to increase in organic matter and for every 1% organic matter, you can conserve 27,000 gallons of water per acre.

Mark:

So, if you have 10% organic matter, that's 250,000 gallons of water or more per acre, and that doesn't end up washing away or being run off and losing it. So, it's a really powerful model, and it's involved with a number of methods. One is not tilling, not turning over the soil because that leads to soil erosion. Cover crops never leaving bare soil, so always crops that actually add nutrients to the soil. All these different grasses and plants, the complexity of an ecosystem puts different nutrients into the soil from different plants, so it actually enriches the soil, enriches the animals who eat the soil.

Mark:

So, if an animal just eating grass fed, it's just eating one kind of hay. It's not going to be as good as an animal eating this complex array, which is adding all these nutrients in the soil and helping extract nutrients from the soil. It's using crop rotation. So, you're actually putting nitrogen back into the land, which is self-fertilizing through various plants like legumes, which put nitrogen back in the soil, involves integrating animals in a very specific way, which is we call it adaptive multi-paddock grazing, holistic management, managed grazing.

Mark:

Essentially, what it means is typically animals, they just over-graze the land, and they destroy it, and they cause desertification. There's an area the size of Nicaragua in North Korea that turns to desert every year in the world because of how they're over-grazing animals. So, it's not just random grazing. It's moving them around like mob herds like they did in traditional wild animals like the buffalo. We got 50 to 80 feet of topsoil in some areas in America because we had these 60 million buffalo and tens of millions of elk and deer and other ruminants who just grazed in mobs, moved around, because they stayed together. They didn't want to be by themselves in case somebody want to eat them.

Mark:

So, they stay in this tight pack. They move frequently, and this is what they do with these managed grazing systems. They'll move them very quickly from paddock to paddock. They graze down partway. They move on to the next. They pee, poo, dig it. The saliva makes the plants grow. They dig in the earth, [inaudible 00:36:35], and everything wins. Everybody wins, and it's a whole ecosystem. So, it adds ecosystem services, and people think, "Oh, it's not scalable. It's not profitable."

Mark:

Alan Williams who's an incredible regenerative rancher estimates that if you look at conservation land that we're not using graded lands, converting some of the soy and corn fields that are used for animal feed into regenerative farms. We could literally have twice as many regeneratively raised grass-fed, finished cows as we do now from feedlots, twice as many.

Dave:

Yeah, with way less of an environmental footprint.

Mark:

Right, exactly, and there's a called Farmland L.P. I think it's a private equity company. They've been buying regular farms, and then they convert them to regenerative farms, and their profits go from single digits to 60, 70% profit on these regenerative farms, and they add ecosystem services. In their cohort of farms, they added about \$21 million of benefit to the environment whereas the same conventional farms before took out \$8 million of ecosystem services, and we need to be paying for these. The government needs to be paying farmers for providing these services.

Mark:

Right now, they're not getting any supports. They're not getting any subsidies. They're not doing anything, and they're actually doing better, but it's hard to convert over because you have a time period to convert your farm, and it takes a while. So, we need to actually create that model, and that's really why I'm working on the government level to change these policies.

Dave:

Now, you have a track record of going in and directly doing stuff. I mean, you're one of the first guys on the ground in Haiti when there was a big disaster there. I mean, you care really deeply more than I think a lot of people know, and you've talked about some of this on past episodes, but you put your energy where your mouth is about creating change, and I got to say when you told me, "Dave, I'm writing this new book called Food Fix," I'm like, "You're writing a policy book? Policy books are incredibly boring because there's nothing actionable in them."

Dave:

It's the last thing that I want to read, but I did read Food Fix. This isn't a typical dry policy wonk sort of thing.

Mark:

No.

Dave:

There's a lot of actionable stuff in there.

Mark:

Absolutely.

Dave:

So, for someone listening like, "Okay, fine. I'm going to vote for the rare politician who says they're going to do something," but usually gets stopped by the big corn lobby still growing corn for making ethanol for fuel, which is a horrible crime against nature. So, they're going to have to go fight that. So, it's like, "All right. Fine. I'm going to vote," but what else is in Food Fix that people can actually do now? Because it's not easy to go buy that stuff.

Mark:

No. So, it's definitely a hard-hitting investigative journalistic book about what's wrong, but it also flips in the story and says, "How do we fix this? What do citizens need to do? What do businesses need to do? What can philanthropists and NGOs do? And what can governments do and policymakers do?" In fact, I

created a whole action guide. It's derived from the book that's free on my website. Go to foodfixbook.com. You can get my five steps video to a healthier planet, a healthier you, and the action guide, which will actually give you a map of all things you can do personally.

Mark:

So, what can you do personally? Some of the things are obvious. You can eat and become a regenetarian, which is-

Dave:

Nice.

Mark:

... hard to do, but it's going to be increasingly easier to do, and there are places like Thrive Market where you can get regeneratively raised meat, and there are places like Mariposa Ranch where you can order online. There's a place like ButcherBox, which are pretty good. I don't know if they're completely regenerative, but there's a lot of great resources.

Dave:

There's grassroots, co-op. There's a bunch, and it's not expensive either. Some of that stuff is, but if you order your 20 pounds of frozen, grass-fed ground beef, it's going to cost you less than it would cost you in your local store.

Mark:

Well, actually Mariposa Ranch, basically, you can go in and get a cow share with somebody and buy only half a cow and split it up, and it's about eight bucks a pound on average, which is for a four ounce serving is less than a McDonald's hamburger.

Dave:

There you go.

Mark:

Okay, so for regeneratively raised grass-fed beef. It's harder to do, but you can do it, and then there's other things you can do. You can eat a Pegan, which is basically good for you, good for the planet and good for your wallet.

Dave:

I don't eat too much meat. It's not good for you. You don't need a pound of steak a day.

Mark:

No, and then you can do more things like have a compost pile. Food waste is a huge problem. 40% of our food is wasted. If it were a country, it would be the third largest emitter of greenhouse gases after U.S. and China because when the scraps go to landfill, they emit methane, which is 25 times more potent greenhouse gas and carbon dioxide and not to mention all the wasted energy. I mean, with the energy, the soil, the water, the chemicals, everything we use to grow that food is also wasted.

Mark:

To grow the amount of food we waste every year would take the entire land mass of China, and we waste \$2.6 trillion dollars' worth of food. We have more than of calories for everybody on the planet right now. So, have a compost pile. If you live in the city, you can get a little in-house compost bucket, and it'll make the compost in your apartment and would smell, and you can bring it to the local compost depository. In Union Square here in New York, they have it, and in many cities they have it.

Dave:

Oh, yeah.

Mark:

Go talk with your local city councilor, your municipal government. Get them to pass a composting ordinance like they did in San Francisco, but make sure there's no shitty compostables.

Dave:

Exactly. There's two technologies if you want to do composting at home. The first one is the proper compost bins have an activated charcoal filter in them. So, stuff doesn't come out and smell. It's really important, and that's built into the good compost bins. The second one, and this is a blatant plug for a company I started. It's called Homebiotic. It's a spray that has healthy bacteria from soil that eat toxic mold and other mold before it can grow.

Dave:

So, if you missed your composting with that stuff, you're not going to get the fuzzy stuff that you would have got, and you're not going to have to worry about stuff escaping in your house, and it's a \$29 product called Homebiotic and that lasts for a very long time on your compost. So, it's not expensive, but if you're going to have basically food that's turning into soil on your deck or on the corner of things, you don't want it to smell, and you don't want it to mold, but these are hackable, solvable problems, and if we did that though, and you live in New York City, and now you've got a big bag full of dirt, and maybe you've added some worms, what do you do with a bag full of dirt in New York City?

Mark:

Well, there's a lot of city gardens.

Dave:

So, you take it to the city garden?

Mark:

Yeah, but actually in Union Square, you can compost drop-off in all farmers' markets. You can do compost drop-offs. You basically give them your compost. They'll give you vegetables.

Dave:

So good.

Mark:

You can join a community-supported agriculture. In your community, you can start a community garden, rooftop gardens. You can have little windowsill garden. I mean, there's simple things you can do. There's also things politically that you can do. I think that people don't realize how much we matter, and we've become apathetic when it comes to politics, but actually we can make a difference, and there's a group called Food Policy Action. I think it's foodpolicyaction.org where they rate every senator and congressman on their voting records on different food policies, and they score them.

Mark:

The bad ones, you can see who they are, and if you don't want to vote for those people, you don't have to. They've also started social media campaigns where they've literally unseated two particularly nefarious congressmen who are in the pocket of big food.

Dave:

Is it legal to leave your halfway-done compost on the doorstep of the bad politicians?

Mark:

No.

Dave:

Darn. Just thinking about creative solutions to the problem.

Mark:

It's good. It's good. I'll put that in my addendum to the book. Dump your partially fermented compost. Yeah, stuff like that works. There was a great story of this guy who got policy change in Chile because there are examples of other countries who are stepping up, and I think this is the kind of thing we need to pay attention to. This guy was a doctor, and he was the Vice President of the Senate in Chile and finally a doctor who was also a politician, became the president, Michelle Bachelet.

Mark:

But before that, there was a guy who was the president who was obstructing this, and basically this vice president of the Senate went to the president's house and sat in front with a sign saying, "This guy is working with big food to poison and kill our children."

Dave:

Wow.

Mark:

Because he wouldn't work with him. Finally, he got them to work with him, and they emitted a sweeping set of reforms. An 18% soda tax ending all food marketing, junk food marketing, having no more cartoon characters on kids' food, only healthy food in kids' schools, no more infant formula marketing, and it was just astounding. They had warning labels. If a food had too much sugar, a processed food would have these big warning labels on the front. No more Tony the Tiger. They killed Toucan Sam. It was all done.

Mark:

The impact from the ending of food marketing was four times greater than the soda tax, which was 18%, which is very high. So, the most powerful intervention was ending the food marketing, which is what... These companies spent billions of dollars, like billions and billions of dollars targeting kids, targeting poor minorities and driving the chronic disease epidemic.

Dave:

How does that work though? So, I do food marketing. I teach people why eating quality food matters, and then I do my very best to make the highest quality food that costs more than the cheap crap, but is much better for you and uses things like grass-fed collagen for a reason. Now, if we ban food marketing, how do I teach people how to eat and how do I make the stuff they should eat? I'm a little concerned about that.

Mark:

Yeah, well, that's fair. I think what needs to happen is the truth in marketing, right? So you can't-

Dave:

There we go.

Mark:

Right. Yeah, and it should be like drug companies. If something you're eating is known to cause harm, it should have like, "This is going to kill you, make you fat, give you a heart disease, cancer, diabetes, and dementia, but buy if you want it."

Dave:

Is there a cigarette label on food that deserves it?

Mark:

Yeah, I mean, we have on drug advertising. I think there can be all kinds of things, or we can have for example make the grade. It's a great concept we're working on for our Food Fix campaign, which is grading food based on the level of quality based on the number of parameters. So, if companies want to get a good grade like an A, it has to meet certain requirements. Otherwise, they have to put an F on the label? So, you can have, "Okay. This is an F." So, Dave Asprey food will get an A, and Coca-Cola would get an F, right? It has to be in the advertising. So, people know what's what, right?

Dave:

Wow. That's some powerful there. And Mark, this is a very complex systems problem because beyond systems biology, it's ecology, and it's hard because it also is driven by human behavior. A lot of human behavior is unconscious, and it itself is driven by mitochondria, which themselves talk to the environment. So, it's this incredible spaghetti monster of a problem.

Mark:

The [crosstalk 00:47:13].

Dave:

But I think if anyone out there is well positioned to solve it, it's going to require from pushing it on it from multiple angles at the same time. That's how you manipulate a system, and I think I nailed it in your book, and if anyone's going to put the amount of energy into the world to help do that, it's actually you, and I just genuinely want to thank you for writing the book because it's harder to create a book like this, both to do the research and to get people to read it compared to, "What the heck should we eat?" kind of a book, which is also a good book you wrote.

Mark:

Yeah, but people care about this.

Dave:

People care deeply, and it's not that hard, and the book doesn't hit you over the head saying, "You're a bad person," like I just did if you eat industrial meat because you are. But aside from that little thing-

Mark:

Don't let your karma run over your dogma.

Dave:

Totally. It's more hopeful I would just say. So, you did a good job saying like it's not an insurmountable problem. So, when we all feel helpless, we feel apathy when we realize there's nothing we can do, but when you read this book, and you're saying, "Oh, actually, there's enough I can do. I don't have to solve the whole problem, but I'm going to just help to push on the system," so that it'll change. I firmly believe when people stop buying industrial animals, people stop buying the soybean oil fried corn fritters, which are a large part of what we eat. When we do that, magically things will shift over the course of just five years.

Dave:

If you don't believe me, go back to 2011. I started pounding as hard as I could on grass-fed matters and so did you and so did some of our mutual friends, and it didn't take very many of us, and you go to a Whole Foods right now. The number of grass-fed yogurts you can buy, the amount of grass-fed butter you can buy-

Mark:

Crazy. Crazy.

Dave:

... compared to 2011, it's completely shifted in only nine years.

Mark:

Yeah. I mean, listen, Dave. If you watch the Super Bowl, there was an ad from none other than a beer company saying, "We're going organic," right? Did you see?

Dave:

I didn't see that one.

Mark:

Yeah, Michelob, like they're going organic.

Dave:

Wow.

Mark:

Perdue Farms got all antibiotics out of their chickens.

Dave:

Perdue is a massive chicken farm, and the fact there's no... This is world-changing stuff, and we don't think about it that way.

Mark:

They're talking about regenerative agriculture. I heard Mr. Perdue talk about this, and I was like, "Wow. This is incredible." Everybody's moving in this direction. So, I wrote the book because I was feeling very frustrated, and I felt a little bit overwhelmed and was so desperate to try to put a name on the problem and to create a possibility of a solution, and as I got to the end of the book, I was like, "Wait a minute. We can fix this."

Mark:

That's why it's called Food Fix. It's not called Food Apocalypse, right? Although I could have called it that, but it's really a hopeful book because it maps out the problem, and you have to name it to know what to deal with, and then it talks about how things can shift. But I am seeing a tide shifting. I'm seeing farmers talking about regenerative agriculture from Iowa. I mean, people who are just the average Joe farmer caring about these issues.

Mark:

I'm seeing politicians starting to talk about regenerative agriculture. I'm seeing these large businesses talking about it. I see people starting to talk about the chronic disease epidemic, the effect on Medicare and Medicaid, and all these issues. So, my job is really to tell the story to lay out the map of where we can get started. It's not intended to provide a comprehensive review of all the solutions, but I'm now working on an incredible new initiative, which is a nonprofit and an advocacy group.

Mark:

There's a lot of lobbyists for the bad guys but not enough for the good guys. So, we're creating a 501C3 and 501C4 called the Food Fix campaign and Food Fix Action, and we are designing an incredible strategy with strategists who helped Bono raise almost \$100 million to Congress for aids and poverty relief in Africa with an incredible elite team of-

Dave:

Wow.

Mark:

... policymakers, Washington insiders, celebrities, scientists, and politicians who're really an incredible core group of people who understand these issues, want to see change, and are working together to make it happen. So, I can be more excited and happy that actually is happening, and I literally think the universe is conspiring to make this happen. I got an email today randomly from a patient who referred this woman to me who just her company, her husband died. She sold the company for \$4 billion, and she's all about fixing the food system, and she wanted to reach out to me, and I'm like "wants to give money," and I'm like, "I don't even have to do anything," and it's just like coming.

Dave:

Nice. Well, you have my support as well, and this is the work that that needs doing for all of us to live longer than we're supposed to and feel better, and I read the book and left feeling hopeful, which is also a gift. So, Mark, thank you for the amazing work you're doing in the world, and this book is yet another one of your dozen New York Times bestsellers that have changed a lot of people's lives. Actually, it hasn't hit the New Times yet because this is coming out the week of, but we already know what's going to happen, and I just think this book is worthy.

Dave:

So, if you're reading this, or you're listening to this going, "Man, I don't know. It's too much work. It's overwhelming." It's actually not that hard. You have to do everything. Just do something that's in the book. You're saying, "I'll never compost. It's too much work." Then don't compost, but you can still do things that are easy. That'll make a difference. Thank you.

Mark:

Absolutely. Thank you, Dave. This is the biggest issue of our time, and I'm glad you had me on because I think people are hungry to understand how to connect the dots and make sense of what we should do. "Should we eat vegan? Should we eat paleo? Should we eat beef or not?" What is the story behind this and how do we sort it out and how do we actually get to the root of it? That's why I'm so thrilled to be able to share this on your podcast.

Dave:

It's all in there, and foodfixbook.com, and you guys know I interview a lot of authors about a lot of different things, and then I usually say, "I used to read this book," and I mean it because seriously, if you're going to make it on to the show, there's thousands of people who try to get on, and I am pretty selective about who comes on the show whether they have something new and interesting to share with you. I promise you that what Mark Hyman has written in Food Fix is something you haven't read before. It's a new environmental take, but it's also a new systems take on how to change the environment around you, so that you can live longer and feel better and maybe, so the environment around you will continue to exist, and it's not alarmist. It's fun. It's interesting. It's actionable, and it's just worth your time. So, you should read it.

Dave:

As always, you know that if you read a book just like you would tip someone at a restaurant, go to Amazon, leave a review because it will make you live longer to express gratitude to sciences.

Mark:

It also stimulates the same receptors as sugar and cocaine, so that's good.

Dave:

Exactly. Exactly. It's easier than eating a corn syrup burger fried fake whatever. All right, Mark. I will see you soon in person, my friend, and I will support your nonprofit as well.