

News Clip, Host:

Well, I'm very excited about our next guest. His name is Pat Brown. He's the CEO and founder of Impossible Foods, a company that is at the forefront of making nutritious, delicious meat and dairy products from plants to satisfy meat-eaters and address environmental impact of animal farming. So please welcome Pat.

Pat Brown:

I was a biomedical researcher, a professor at the Medical School at Stanford, but I had a sabbatical that I used to try to pick the most important problem in the world that I could contribute to solving. I realized that the problem was the catastrophic environmental impact of the use of animals as a food technology. Nobody is seriously trying to solve this problem, and as a biochemist, I thought, okay, actually, that's a problem I can solve. Our mission is to completely replace animals in the food system by 2035, and you laugh, but we are absolutely serious about it, and I think it's doable. And I'll just say better technology wins in the market.

Jerusha Klemperer:

It has become increasingly hard to ignore that our factory-farmed meat-centric diet is bad for us in numerous ways. Industrial meat production, especially beef, contributes 14.5% of global greenhouse gas emissions, making it a top contributor to climate change. The United Nation's IPCC report on climate change identified that shifting our diets away from meat to plant-based menus has the power to help us fight climate change by drastically cutting our greenhouse gas emissions.

Jerusha Klemperer:

In our last episode, part one on this topic, we looked at one possible solution, plant-based meats. We examined what's in products like Impossible Burgers and Beyond Meat. Are these ultra-processed products actually good for us? And if they rely on GMO soy crops or mono-crop peas, are they the best solution to our industrial agriculture problems? In this episode, we tackle the very important question, are they even on track to replace industrially produced meat, or are they just a new revenue stream for tech investors in large meat conglomerates? We also cover how they taste and other options for what we could be eating instead of an ultra-processed fast food product.

Jerusha Klemperer:

I'm Jerusha Klemperer and this is What You're Eating, a FoodPrint project. We aim to help you understand how your food gets to your plate and to see the full impact of the food system on animals, planet, and people. We uncover the problems with the industrial food system and offer examples of more sustainable practices as well as practical advice for how you can help support a better system through the food that you buy and the system changes you push for.

Urvashi Rangan:

In terms of trying to address the industrial animal agriculture problems, is this the answer? I would say, no, this is more of a distraction.

Jerusha Klemperer:

In our last episode, we spoke to toxicologist food systems expert and FoodPrint's chief science advisor, Dr. Urvashi Rangan about her many concerns with these ultra processed meat alternatives.

Urvashi Rangan:

It doesn't actually deal with the system. It doesn't actually do anything to remedy the industrial animal ag complex, and it hasn't changed meat consumption in this country. And so what is the goal? Is it to get vegans to eat this if they're not, or is it to get meat eaters to supplant their meat consumption with this product? Either way, it doesn't seem to be doing much to change the problems it purports to actually address. And that's problematic, I think, and we could be spending all of this money and resource instead of producing ultra processed foods into actually making our agricultural system better and promoting things like regenerative agriculture.

Urvashi Rangan:

You know, a lot of these products come from monoculture ingredients and monoculture, just planting tracks of one crop, we know is bad for the land. It's bad for the soil. You can't promote biodiversity, you can't promote ecological diversity in those types of systems. We know that those systems simply are not, in the long term, best for the land, best for the crops, best for the soil biology, and not really for us either. So these products, in general, tend to prop up industrial agriculture practices, even if they're non GMO or organic. It doesn't quite get you over the hump of it turning into a great product that is good for us.

Patty Lovera:

Can't these new products, these alternative products, can't they end factory farming once and for all and shouldn't we be psyched about that? And if you hang out with me, or the people I hang out with who are really focused on taking on what's wrong in animal agriculture, we'll probably surprise you when we don't get super excited and say automatically, yes.

Jerusha Klemperer:

That was Patty Lovera, an expert on food policy and food systems issues. This question of how best to reduce the number of animals suffering in our factory farm system, and also contributing to catastrophic amounts of greenhouse gas emissions, is one that there's a lot of disagreement about, both within the animal welfare community and also the community of people committed to slowing climate change. So much so, that when a prominent vegan and New York Times opinion columnist Ezra Klein called for government investment in these meat alternatives as a moonshot for fighting climate change, there was not unanimous agreement that this was a great way for the government to be spending its money when it comes to fixing the food system.

Patty Lovera:

I think it's a false presentation that you can have. You have those products or you have factory farms, and those are our two options. There's not a bigger critic of the way we raise most animals in this country than I am. I do not like industrialized animal production. Having said that, I don't think that's the only way to raise animals. Raising animals, a much better way in a way that's integrated with sustainable farming and also crops and not confining animals. I'm way more interested in that than just coming up with a very processed, typical, very consolidated supply chains bringing you a processed alternative that doesn't really change the farm and food system.

Jerusha Klemperer:

And so it sounds like when you're building a product that is made with these component parts, which are mono cropped, Roundup doused crops to make these ultra processed meat alternatives, you're reinforcing an existing system. People might feel like, "Oh, I'm really upending the system by eating this instead of a burger," but it sounds like you're really not.

Patty Lovera:

Again, it depends. I mean, if they were sourcing organic raw ingredient, raw materials, those are not allowed to be produced with a Roundup or a synthetic fertilizer. They have a lot more rules. Some of these companies are, some are not. So that's still on you as a consumer to be like, "What system am I supporting?" But yeah. I mean, acres and acres and acres of soybeans to replace factory farms is kind of a half assed improvement, right? It's not the improvement we could have if we had a more radical rethinking of livestock, less of them, let's be clear, but livestock in pastures on farms that do other things, because it's a more diversified system. But that's a bigger shift. That's a much bigger transformation than just, oh, we are more acres of soy that then go into the processing plant to make the components where we synthesize this meat replacement. Also people could eat some beans. Those are plants.

Jerusha Klemperer:

Instead we get a new product category, the so called plant-based burger, or the larger category plant-based meat, and there is a lot of money to be made.

Urvashi Rangan:

I will say that the investment of this product category did largely come from Silicon Valley, and it's bizarre because Silicon Valley doesn't normally get very involved in food.

Ryan Nebeker:

Investors are really interested in seeing patented tech. Now, traditionally, you wouldn't necessarily patent food, like a potato or a loaf of bread. But as food processing has become more advanced, food companies have been more interested in protecting their intellectual property, whether that's a product or a process, something that allows you to keep a chip crisper for longer. This is also the case in alt meats, but things get a little weird here because the market doesn't quite exist yet. And so what you see is a couple of companies, most notably Impossible Foods, being really aggressive and gobbling up as many patents as they can around their products and processing techniques to claim this market share in anticipation of a market that doesn't really exist yet. But the thinking there is that if you have more patents on the table, you're going to be able to successfully corner this market that they project is going to grow a lot in coming years.

Jerusha Klemperer:

This is Ryan Nebeker, policy and research analyst for FoodPrint.

Ryan Nebeker:

It's important to sort of situate this in the broader investment market, which is pretty weird right now, and a lot of that has to do with the coronavirus pandemic and because the federal reserve was eager to avoid an economic collapse, they dropped the interest rates super low. And so across the entire economy, right now, it makes a lot more sense for investors to be putting all their money out there.

Impossible Foods, in 2020, closed another round where they attracted \$200 million more funding. Six months prior to that, they had just done the other largest ever funding round for an alternative food tech startup. So in total, since 2011, they've raised more than \$1.5 billion, and are their sales really tracking with that so far? No. In total, the alt meat market has about 1.4 billion in sales in 2020.

Jerusha Klempere:

And these products have not remained the purview of tech companies with a supposed do good to do well philosophy. As soon as the big meat companies realized there was a new market, a competing market, they jumped in. Now all of the biggest and most problematic meat companies, Purdue, Tyson, JBS, they're all making so-called plant-based meats.

Anna Lappé:

When you look at the words from these companies themselves that are investing in the products, what they say is this is not about replacing their animal ag streams. This is about adding to it.

Jerusha Klempere:

We talked to Anna Lappé, who writes about food and climate and who has worked closely with her mother, Francis Moore-Lappé, on several books, including the newly released 50th anniversary edition of her seminal book, *Diet For a Small Planet*, which speaks presciently about the urgent need to center plants on our plates.

Anna Lappé:

I was just reading a quote from Tyson Foods who said, literally, "We remain firmly committed to our growing traditional meat business and we expect to be a market leader in alternative protein." So the companies themselves are saying, "No, we're not using this as a way to reduce our traditional meat production. This is just going to grow our market share," right?

Ryan Nebeker:

They're now running their own brands in the plant-based meat space and they are producing competitive products. They're vegan. Great, but they're also making money that goes back into Tyson's pocket, and when you think about it critically, is Tyson the meat conglomerate, are any of these meat giants going to do anything that cuts into one of the revenue streams? No, they're going to try and develop this plant-based meat market as something that sits alongside where they can make more money, rather than something where it cuts into their sales.

Ryan Nebeker:

The other thing to keep in mind is that even though Beyond and Impossible and some of the early players might have a lot of proprietary technology that attracts investor interests, maybe these big players, like Tyson, like Cargill, they have enormous, well distributed networks. They know how to get a massive quantity of soy. They know how to process a huge quantity of soy because they're already doing that to feed livestock. So they can really reconfigure quite easily and be really competitive in this market where all of a sudden you have this plant-based meat market that's entirely going into the pockets of the existing meat industry. And what are they likely to do with that? They'll probably use it to increase their own political power and continue deregulating the meat industry.

Anna Lappé:

You know, this is the nature of late stage capitalism. The brands that are starting to create these new products are getting purchased by some of the largest meat producers in the world, and I think we have enough evidence that there are terrible consequences to that kind of concentration of power in the marketplace. And that, when you start seeing that kind of consolidation of control, you start seeing things like lobbying for deregulation in the marketplace. You start seeing a decline in competitiveness. You start seeing impacts in terms of consumer prices. Consolidated markets are not a good thing for anybody except for the companies that are profiting.

Anna Lappé:

I would say there's a real parallel here with some of the big food brands purchasing up the smaller organic brands as they came online. And so what have we seen over the course of the past, say, 20 years as small organic food companies have been purchased by bigger companies that have mixed portfolio organic and otherwise? We have seen those now parent companies be completely content with keeping organic as a niche market and actually actively lobbying against the kinds of policies that would make it easier, say, for farmers to transition or make organic markets grow. Those companies are perfectly fine charging a huge market for organic, keeping it as just a niche part of their market portfolio, and continuing to plow ahead with pesticide latent food.

Anna Lappé:

And I don't see any reason why we wouldn't see the same thing with these huge meat companies purchasing these alt based companies and continuing, again, to see them as a niche market that they can add on to their main profit center, which continues to be animal agriculture. And as long as those companies are purchasing up those alternative meat companies, they have very little incentive to regulate themselves more extensively when it comes to their industrial animal ag production. I would add on, too, that the very companies that are moving into this marketplace, particularly in the wake of this pandemic, these are some of the worst corporate players in the marketplace.

Ryan Nebeker:

The other thing to think about is that most of these large companies are playing an international game. It's similar to what we've seen in dairy, where US consumers are less interested in drinking milk, and what has the dairy industry done about that? Well, they're selling less milk, less fluid milk in the United States, but they've successfully marketed their way into all of us seeding more cheese in the United States. And we are now exporting way more dairy products than we ever used to, especially dry milked places like Asia.

Ryan Nebeker:

So when we think about if the meat industry in the United States gets threatened or their sales trajectories change because of these plant-based products, they will probably just rejigger everything so that they are still making and selling as much meat abroad as they are here. They've already been working on changing international habits to accommodate far more meat that is traditionally consumed in a lot of places. I think part of the reason that the meat industry is so successful, because the fast food industry is so successful, and the fast food industry is so successful because they're not just selling food, they are selling a convenient component of lifestyle that just says, "You don't have to worry about this. Here's a meal." They've made it hyper palatable and everything else. And it's interesting because these ultra processed meat alternatives fit right into that paradigm.

Ryan Nebeker:

And so when we think about the changes that we need to see in the food system long term, ultimately the fast food market is, in some ways, incompatible with those changes because the fast food market demands a lot of cheap, industrially produced, uniform inputs. You need this many tons of potatoes and they all have to be this big and pretty perfect. And so that kind of demands an industrial food system. And so is it any better to have to produce a bunch of soy to exact specifications so it can be made into these burgers? These might take a little bit of the bite off when it comes to the worst excesses in the meat industry. You're not dealing with a manure lagoon anymore, but you are still dealing with a whole industrial supply chain that comes down to the consumer. And so for our health, for our environmental health, it's maybe not the best way forward.

Jerusha Klemperer:

How's it going everyone?

FoodPrint Staff:

Hi.

Jerusha Klemperer:

The FoodPrint team decided to get together to try some of these ultra processed alternative meat products. Each of us tried something we hadn't tried before, including Beyond Burgers, fish cakes, prosciutto, and chicken patties. And one person brought up Dr. Praeger's Veggie Burger, which is more in the category of a veggie burger that we've seen before that has more whole recognizable plants in it.

Ryan Nebeker:

Yeah.

Jerusha Klemperer:

Okay, so you've got an Impossible Burger, the feature of which is it's going to ooze, it's going to bleed a little?

Ryan Nebeker:

Mm-hmm (affirmative).

Jerusha Klemperer:

Let me see.

Ryan Nebeker:

I mean, judging by the external color, I'm actually not excited about the prospect of this oozing.

Jerusha Klemperer:

I've got a Beyond Meat Burger and I think I overcooked one side of it, because we made a last minute decision to melt cheese on top. I decided, based on my experience as a vegetarian eater, that a lot of these products do best when you put a lot of things on top. I've got cheddar, onion, ketchup, and lettuce. I will just say about this, my first Beyond Burger, that I totally don't mind it, but there is

something that's just very unfamiliar. It's not unpleasant, but there's a follow up background flavor and smell that is wholly new to me, which is an unusual sensation.

Ryan Nebeker:

It kind of just feels like they took grease from the back of a grill and just slathered it on this. It's a very meaty flavor, but it's very oily and dirty.

Jerusha Klemperer:

I wonder if that's what this is. It's very surprising.

Katherine Sacks:

The reason that it has that after taste is because it's a hundred percent pea protein. There's no soy and it's the pea protein that's giving it that taste and smell. I tried a plant-based chicken filet from Beyond Burger.

Ryan Nebeker:

How's the texture on that?

Katherine Sacks:

It kind of looks like a chicken nugget.

Ryan Nebeker:

Okay because that's definitely the easier texture for them to do.

Katherine Sacks:

This kind of has the texture of a fake beef burger, but it's white. So I also bought this Mia.

Ryan Nebeker:

I'm very curious.

Katherine Sacks:

Plant based from Italy, carpaccio style, plant-based deli slices. The ingredients are wheat gluten from wheat, Durham wheat flour, some flour oil, natural flavors, yeast extracts, coloring.

Speaker 10:

Looks like fruit rollups.

Speaker 8:

It really does.

Katherine Sacks:

Yeah. It has wheat flour, pea protein, sour dough culture, white pepper powder, garlic powder. I mean, it's chewier than prosciutto and stickier, but it has that salami flavor.

Jerusha Klemperer:

She shrugs and takes another bite.

Katherine Sacks:

I mean, it's very gummy. I don't know. I mean, my reaction to this is kind of like, who decided we needed this? I have a friend that's a vegetarian and he doesn't eat vegetables.

Samarra Khaja:

Junk food vegetarian?

Katherine Sacks:

Yeah, so this kind of stuff is, I guess, for them, I don't know.

Samarra Khaja:

I think I would try more of these recent flavor offerings by Dr. Praeger. I like their ingredients list. Even though the ingredients list is a solid eight lines long, it is all pronounceable stuff. Cooked brown rice, canola oil, carrots, spinach, zucchini, water chestnuts, brown rice, flour, potato cakes, beans sprouts, nuts.

Ryan Nebeker:

It's interesting because I think if I'm looking for a vegetarian option, I'm actually not that interested in fidelity to meat. I kind of want something that is a little bit different, and also, outside of the novelty value of seeing how close they got it, I don't have a lot of interest in it being very meat like. Yeah.

Jerusha Klemperer:

Okay. Talk to y'all later.

FoodPrint Staff:

Bye.

Jerusha Klemperer:

Bye everyone.

Alicia Kennedy:

Well, I love a veggie burger made from beans and vegetables. I'm old fashioned in that way. So I have a restaurant down the street.

Jerusha Klemperer:

I talked to Alicia Kennedy, who has a widely read weekly newsletter on food, media, culture and politics, and is writing a book about ethical eating.

Alicia Kennedy:



When I cook veggie burgers, I make the Superiority Burger recipe, it's a process. That veggie burger, it involves quinoa, and onions, and chopping carrots into teeny tiny cubes, but obviously, as a cook and a food writer, I do love to do those kinds of processes. But there's also just such a world of really easy veggie burgers where you literally just take a can of beans, and you cook a little grain, and you put them in a food processor, and you add some spices, and you make a patty, and that's it. And those are things you can make in bulk, and freeze, and then you have something available all the time for you.

Alicia Kennedy:

The only time I've ever bit into one of the tech meat burgers was an accident. I was at a bar in my hometown where I grew up on Long Island. They had a veggie burger on the menu. I was excited. They called it a veggie burger, and so now I ask questions, but I was like, "Oh, if they're calling it a veggie burger, it must be a veggie burger." And I was like, "I don't care if it's a Morningstar Farms patty, a Boca Burger, I don't care. Those things are fine with me." But then it came out, I bit into it, and I was like, "No it's beef." I almost started crying because I thought I'd eaten beef.

Alicia Kennedy:

And so I asked the waitress, I was like, "What is this? I'm sorry. I think you gave me the wrong." She's like, "Oh no, it's a Beyond Meat patty." And I was like, "Oh," and I just couldn't eat it, because for me, not having eaten meat, at that point, for almost a decade, I was like, "This is too weird and this isn't what I want." I want to eat vegetables, and I want to eat beans, and I want to eat grains. I know that makes me weird to most Americans, but I just find those patties so uncanny and strange, unfulfilling, and one note. I mean, but that's what meat is, too, I suppose, is it just tastes like what it is and that's it. I like a little bit more nuance, I guess, in my food. Well, I've grown so accustomed to veggie burgers where it's like, "Okay, I'm getting a real mirage of spices and flavors and everything." A veggie burger can really be whatever you want it to be.

Jerusha Klemperer:

So why aren't we just pushing black bean burgers, working really hard to make excellent plant-based burgers made from sustainably raised beans and grains?

Ryan Nebeker:

Resistance to black bean burgers or other more traditional veggie patties, even the fairly processed options like Boca Burgers, Gardein, that a lot of vegetarians are familiar with comes from this idea that people are really resistant to change and that it's important to meet them where their tastes are. And there's some logic to this. It is kind of hard to convince people that they like something versus that they don't, especially when, in our sort of food mythology that lives inside of each of us, our understanding of nutrition, we've sort of lionized protein into this. Protein is the God tier nutrient. It is the thing that you need the most of and a lot of people are confused about do beans even have protein? Are they just carbs, or all these other things? And a lot of that is successful manipulation from the meat industry.

Ryan Nebeker:

So there is just this perception that meat is the most efficient way to get things, and if you're not eating meat, you need to be eating an isolated protein source, and that just a bean isn't going to cut it. And obviously we know from the billions of vegetarians worldwide, that that's not the case. Most people survive mostly on lean proteins and other proteins. But the other critical problem with this is just the fact that you want to meet people where they're at, sure, but also we should recognize that our tastes

for things, like hamburgers, and bacon, and all of these meats, are just as engineered as anything else. They can and should be reversible. We eat so much meat in part because of some really successful marketing campaigns, largely in the 20th century.

Jerusha Klemperer:

This left me wondering about some kind of middle path. Is there something in between an Impossible Burger and a black bean burger? Something that could appeal to meat lovers trying to do better, to convert them away from some or all of their climate change inducing beef laden meals? Something better than an old school Boca Burger? This led me to Kale Walch. Hello.

Kale Walch:

Hey, what's up guys?

Jerusha Klemperer:

How you doing?

Kale Walch:

Oh, pretty good. I got away from the kitchen. That's always an achievement.

Jerusha Klemperer:

Kale, and that's his real first name, and his sister, Aubry, run the Herbivorous Butcher in Minneapolis.

Kale Walch:

And we're a full service vegan butcher shop in the heart of Northeast Minneapolis. We've been making vegan meats and cheeses in house in extraordinarily small batches since 2014 now.

Jerusha Klemperer:

I visited there in pre-pandemic days and was amazed at how much like a butcher shop it looked, with cases of meat like products on trays. I asked him what his products were made of and he explained that they're all made from vital wheat gluten, which is a very high protein wheat flour that he and his sister started working with in the beginning, simply because it was widely available. He then explained, and I'm bummed the audio was not better so you could hear it straight from him, that he wishes they had a magic machine that turned pea protein into a block of chicken.

Jerusha Klemperer:

But what they have instead are mixers, big commercial stand mixers that you use for making bread and that they mix the wheat gluten until proteins strands form. And after that, it's all about shaping and flavorings. Pretty low tech stuff. One of the things that obviously strikes me about these larger companies is this grand vision, right? Which you need to do something on that scale. We're going to eradicate animal agriculture, we're going to reverse climate change, we're going to all of these kinds of things. Do you and your sister approach your business with a vision for any kind of systemic change? Is it more grounded in creating viable and delicious alternatives for vegans? What motivates you all in that way?

Kale Walch:

When we started the business, we wanted to save the world. We thought we could have enough of these butcher shops all around the world that it would end animal agriculture, and we could try to fix climate change. And I'll tell you those are still our goals, but we've grown a bit of realism through the years, you know? And we see the things we can do within our means. Having stores in every city around the world, it's just not going to happen. We've tried doing lots of things. We've tried expanding a lot, and we definitely will still expand in the future, but we learned that we won't save the world by ourselves. Even if we change the mind of one person that maybe I can switch over to a plant-based diet, then it's all worth it for me. Yeah, we still want to save the world, but we're just more realistic about our goals now.

Jerusha Klemperer:

I asked Patty Lovera about another option, the good, regeneratively raised burger. Why can't that be more available and accessible for people who want to opt out of that factory farmed meat system, but still eat a burger?

Patty Lovera:

It shouldn't be so hard. Why is it so hard? Why do you have to be some advanced consumer? Either advanced because of means, because you have a lot of money to spend, or advanced because of information, or advanced because of time that you have to go seek this stuff out. It shouldn't be this hard to buy food that is checking all the boxes we need at the check, in terms of being good for the climate and being good for the farmer and the animal. So I, from my perspective, I always go first to policy, the system, the economic system, which let's be clear, the economic system that farmers participate in is a result of farm policy. That system is not built for these types of producers, and they shouldn't have to work this hard to do what they do.

Patty Lovera:

But when you talk to them, it is just a struggle at every step because the system is built for others. It is built for commodity, industrial style. And you talk about how you raise animals, I mean, it's just like every step of the infrastructure that other farms get to use often doesn't work for these producers, and that is not just because they're a tiny number. It's because the policy is written by the big guys. So I think we have to tackle that policy system to make space so you don't have to be such an overachiever to farm this way. We should change the rules so it's just not so unusual, and it shouldn't be as hard to farm this way.

Anna Lappé:

Looking at the swath of 50 years from the original Diet for Small Planet to the 50th anniversary edition today, my mother and I talk a lot about the need to hold the both and of our collective moment. That things are both so much worse than she ever could have predicted. I mean, who knew about climate change? Well, Exxon maybe did, but the everyday American didn't know about climate change in 1971, right? So things are so much worse. We're going through this global pandemic, which of course has only made things even more staggeringly challenging, and there is so much to celebrate.

Anna Lappé:

And so part of the moment is to hold that both and, that today, when you look at worldwide, how many deaths, I think it's one in five deaths, now come from diseases in which poor diet is a risk factor. I mean that is a staggering fact. A staggering fact about the failure of our political systems to support a food

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system that's actually health promoting. Yes, that is staggering, and at the same time, we have such better understanding of the kinds of foods that we should all be promoting and that we should all be eating in order to have a diet that's good for our bodies and good for the planet.

Jerusha Klemperer:

What You're Eating is produced by Nathan Dalton and foodprint.org, which is a project of the Grace Communications Foundation. I'm your host, Jerusha Klemperer. Special thanks to FoodPrint staff, Ryan Nebeker, Katherine Sacks, Kristen Link, and Samarra Khaja, to Dr. Urvashi Rangan, Patty Lovera, Anna Lappé, Alicia Kennedy, and Kale Walch. You can find us at [www.foodprint.org](http://www.foodprint.org), where we have this podcast as well as articles, reports, a food label guide, and more.