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Jerusha Klemperer (00:00):

So, what kind of milk did you choose for your coffee drink?

Speaker 1 (00:05):

I had oat milk today.

Jerusha Klemperer (00:07):

And why'd you choose oat?

Speaker 1 (00:08):

I just like the taste. I feel like it's creamier than regular milk, and it's healthier for you, allegedly.

Speaker 2 (00:14):

Allegedly.

Speaker 1 (00:16):

That's it.

Jerusha Klemperer (00:19):

Did you make a milk choice today?

Speaker 2 (00:21):

Also oat milk, I think because it is also creamier, but the whole grape seed thing, the grape seed oil that's in it-

Speaker 1 (00:28):

In almond milk?

Speaker 2 (00:28):

Yeah. Is it almond milk or oat milk?

Speaker 1 (00:29):

I think it's both.

Speaker 2 (00:31):

It's concerning, but I choose oat milk for the taste and the creamy factor.

Jerusha Klemperer (00:37):

Well, when you say it's creamier, you mean creamier than regular milk, or creamier than almond?

Speaker 2 (00:42):

Creamier than almond. Regular milk to me is gross.

Speaker 1 ([00:46](#)):

Yeah. I like the taste better than regular milk, to be honest.

Jerusha Klemperer ([00:50](#)):

What are you putting in your coffee, and why? Are concerns about climate change fueling your decision? What about animal welfare? Maybe water issues and concerns about drought. Maybe it's just about taste. 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 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.

([01:34](#)):

For the longest time, milk meant cows' milk. Usually whole but maybe skim or 1% depending on how old you are, but today, walk into some independent chains and if you don't specify what kind of milk you want in your latte, you'll get oat milk, the stuff that mama oats feed their baby oats. Or at Starbucks or a neighborhood café, you might ask for a coffee with milk and have the barista say, "What kind of milk?" And depending where you are, that list of possible answers could include almond, oat, pistachio, macadamia, soy - the list goes on and on.

([02:09](#)):

In today's episode, we explore the footprints of the various options you have to make your coffee a little creamier. What are the production issues with each? What do you gain or lose by choosing one over the other? We talk to experts about dairy farming, almond farming, oat production and more, as well as coffee professionals who are shaping the landscape in real-time, all to help you get to the bottom of your coffee cup.

Patty Lovera ([02:32](#)):

I think dairy is a super good example of really, the buyer beware, and that the picture on the package is there for a reason, but that is not necessarily documentary situation where the cows really came from that hill. Three cows on a grassy hilltop with the red barn and the pickup truck. There are still dairy farms doing that, but there are a lot that are not.

Jerusha Klemperer ([02:55](#)):

First up, the original milk. The only real milk, some might say. Cows' milk. Of course, it's not only going in your coffee cup or on your cereal, it's being turned into ice cream and a whole lot of cheese and incorporated into a bunch of processed foods. Dairy is really complicated, but we're going to do our best here to capture the myriad issues at play.

Patty Lovera ([03:15](#)):

My name's Patty Lovera and I've worked for a long time on various food policy issues, and so, I do work for different coalitions and groups on factory farm issues, issues for organic farmers, and for a long time, I've been really specifically spending a lot of time looking at how food animals are raised. There's been a lot of attention paid to beef and what beef cattle's carbon footprint is and there's some overlap when you're thinking about milk and dairy products because they're also cows. One thing that you hear about and it gets misconstrued in the popular imagination because it's more fun to talk about farts than burps, but there's this running gag about cow farts and climate change is happening because of cow farts.

[\(04:04\)](#):

One of the issues is actually burps. It's actually the other end, because cows have multiple stomachs and they have multiple stomachs which lets them break down plant material that we couldn't eat as food and get anything out of it, so they have all those stomachs for a reason. They're breaking down various grass or whatever plant material they're eating and that can produce methane. Methane is a really powerful greenhouse gas.

Jerusha Klemperer [\(04:32\)](#):

Cattle are the number one agricultural source of greenhouse gas emissions, and while all cows burp, releasing methane and contributing to climate change, Patty was keen to point out that there are different systems for raising cows and different scales of systems, which means that not all dairy has the same carbon footprint and we'll come back to that, but the majority of cows' milk that you can find out there is what we're talking about now. These are cows raised in the industrial system. Often, it's something called a mega-dairy.

Patty Lovera [\(04:59\)](#):

Thousands of cows, maybe 10,000 cows. That's an enormous number of animals in one place, so you're concentrating them. You are very, very, very, very unlikely to find a farm that has enough land base that you could walk those animals out in the morning, have them get most of the nutrition from a healthy pasture, walk them back to the barn to be milked, so now you're bringing the food to them and that food is probably going to be corn, soy. All dairy farms use hay.

[\(05:27\)](#):

They are growing grass in the summer and cutting it and storing it for the time of year where the grass isn't growing, but it's a different arrangement. If you got 10,000 cows in one place, it might not be coming from a local source, you may not grow it, you may be buying it in and then you're concentrating the manure in that place and you are no longer managing it where it's scattered in a useful pattern for the grasses to grow, it's natural fertilizer in a cycle that stays in balance.

[\(05:54\)](#):

You have to move the manure out of the barn usually with water, so now you have a lot of liquid that is full of manure. You store it in very large lagoons and neighbors hope that they don't overflow in a rainstorm or have a structural problem and leak. At some point, they need to be cleaned out. You get the solids out of the bottom and that is land applied technically as fertilizer, but if you over-apply it because you have a lot of it and you got to get rid of it, it starts to look like waste disposal. That's where we get into neighbors worrying about runoff into surface waters like a stream or polluting wells in an area where the geology lends itself to things getting through to the groundwater really quickly.

Jerusha Klemperer [\(06:36\)](#):

Beyond the environmental issues, there are also issues of animal welfare. Cows that are housed in mega-dairies have one purpose. To produce as much milk as possible, and this near constant production takes a true toll on their bodies and the conditions they live in can be really stressful. If they're unlucky enough to be born male, they'll be sold off to be beef cattle or raised to be sold as veal. There's also the use of routine antibiotics to prevent the spread of disease in these confined quarters as well as the use of artificial growth hormones, like rGBH, on bigger farms where they're really pushing the animals to produce.

Anna Canning ([07:11](#)):

It isn't the farmer and his wife or whatever anymore, but because there's so many policy choices in the food system that really pushed this get big or get out model of agriculture, it means that farms have gotten bigger and bigger and they're milking more and more cows and each cow, they're extracting more milk from that cow and all of that pressure to produce than just gets pushed down onto workers.

Jerusha Klemperer ([07:38](#)):

That's Anna Canning, former campaigns manager for Fair World Project. For their podcast, A Better World, they did an entire season called Unfair Dairy that explored the problems with our industrial dairy system. In particular, several of those episodes focused on what life is like for dairy workers.

Anna Canning ([07:55](#)):

For this podcast, I talked to a bunch of organizers who work with dairy workers and it's really common for workers in dairy to work 12 to 14-hour days, six days a week. I've heard stories of workers getting penalized for not wanting to come in with next to no notice and work on that one day off. It's one of those jobs that really just works people hard and the work itself is really grueling and it's super physical, so over the past few years as I've been working on this Unfair Dairy series and then a campaign around it, looking at Chobani and a new fair trade dairy label made by Fair Trade USA, I've had the opportunity to talk a lot with Crispin Hernandez who is an amazing organizer with the Workers Center of Central New York and he was also a dairy farm worker for many years.

[\(08:55\)](#):

Talking with him about the work, one of the themes that was so constant was just the rushing. That he'd be working this 12 to 14-hour shift and just running the whole entire time. The irony of this, that rush to produce more milk, it's a rush to produce more milk that no one really needs. At this point, the US produces more milk than is consumed and there's actually a problem that exists that people put all this time and effort into solving. It's like what to do with that excess milk.

[\(09:33\)](#):

So I've talked a lot with dairy farm workers in the northeast, especially New York and Vermont and researchers there have said that it's around 80% of dairy workers are undocumented, mostly from Mexico and Central America and they're living on these farms which are often really remote, and one of the things that's been really interesting having these conversations with folks around this issue is that people don't necessarily even know where they are in geography in space because they get taken to a place and that's the place that they work.

[\(10:14\)](#):

They also live on site, which means that if you speak up about conditions on your job and the potential to get fired for that is really high and we can get back to the legal framework that makes that happen, but if you were to lose your job, you would not only be out a job, you would also be out your housing. The power discrepancy between farmers and then the workers is really large. Farm workers are written out of a lot of US labor law that applies to other workers. Overtime protections that most people, they work a job, they work over 40 hours a week, they get paid time and a half for that.

[\(10:59\)](#):

That is not the case for farm workers. Likewise, if you work most jobs, your right to organize is protected. You talk with your coworkers about wages, about improving labor conditions. The law says that you can't be fired for doing that. Those protections don't apply to farm workers by and large, and

then being undocumented means that every single encounter with any legal body has much higher stakes, so you could be deported for any number of things.

Jerusha Klemperer ([11:39](#)):

There's been a pressure on farmers for many years now to get big or get out, and for so many dairy farmers in recent years, that choice has been a forced one and they've had to get out. Dairy farmers are in crisis. The problems with dairy prices are so bad that sometimes, they can actually be losing money on their milk production. I asked Patty to explain how we got into this mess and why things are so bad for dairy farmers right now.

Patty Lovera ([12:02](#)):

The top level answer is we have really bad farm policy that has failed on a number of fronts in lots of sectors of agriculture, but it has been severe in dairy. Underneath that, if you break that down a little bit, we absolutely have a failed anti-trust policy, which is just a fancy government way of saying we have let a lot of the players in that industry that stand between the dairy farm raising the cows and somebody in the grocery store buying yogurt, there are a lot of steps in between and we've seen tremendous concentration in those players.

([12:41](#)):

Those dairy farmers have fewer and fewer and fewer options to find a good deal for themselves. Dairy farmers are uniquely susceptible to a weakness in the market because there's more milk coming tomorrow. There's only so much of it you can store. They have very, very, very high costs. A lot of them don't have a lot of profit or return and they have tremendous volatility. We see tremendous swings in the price of milk. There's a joke that there's 10 people in Washington who understand how milk prices are set. I am not one of those 10 people, but I can tell you that in the Farm Bill and we do write a Farm Bill every five years, there are these very elaborate formulas where the price of milk is set and there's reasons for that.

([13:25](#)):

Before we had a lot of the technology we have now, there was a national interest in having a regional milk supply because how far do you want to ship milk before it's not too great and it gets to you. It was like we have to figure out a marketplace that keeps enough dairy farmers in business in the right regions of the country so that everybody in cities has a milk supply that works for them. Some of it is a relic of that. Some of it is a recognition that dairy farmers are...it's hard to shop around when there's more milk coming tomorrow.

([13:52](#)):

It's hard to get off your farm, so it was a recognition that they needed some protection that there would be a minimum price, but what it boils down to is the goals of that program are not about starting backwards from what is the cost of production for a farmer. How do we ensure that they get paid at least what it costs to produce? That is not one of the goals of that formula, but if the goal is not to say, "What is the cost of production? Can we start there as a floor?" What's going to happen when you have a couple of big players in most parts of the country? They're going to find ways to manipulate that formula.

Anna Canning ([14:31](#)):

There is this squeeze coming down from the top and these big dairy cooperatives or dairy processors are really pushing the price down.

Jerusha Klemperer ([14:44](#)):

Anna pointed out to me that part of the reason worker conditions are so bad is because dairy farmers have so little to work with and are desperately cutting corners. The farmers are not getting rich off the backs of the dairy workers.

Anna Canning ([14:56](#)):

Putting it all down onto farmers to magically cough up more money in this industrial food system that is really pushing the race to the bottom, it's recognizing who has money, who has power, and how do we shift some of that down to the people who are doing the work every day.

Patty Lovera ([15:16](#)):

There are family farm advocates, folks who are doing the 100 head, 200 head smaller scale dairies who actually look to Canada where they have tremendous amount of government involvement as well, but the government is involved in saying how much milk is going to be produced and what the price for it is going to be, and they call it supply management and that is the goal, to manage the supply so that both sides of the table, the farmers and the buyers, can come to some conclusion and not have one always in the advantage over the other. When you talk to the dairy buyers in this country and they're like, "Supply management, that's the government being involved in the marketplace," and it's like the government is involved in the marketplace here. They're just involved in a way that doesn't protect farmers.

Jerusha Klemperer ([16:01](#)):

Right now, it's hard not to look at dairy production as a system with a lot of losers and just a few winners. While dairy production is not the only culprit of course, one of those losers is rural America itself.

Patty Lovera ([16:13](#)):

If you have 10 farms with 100 cows or you have one farm with 1000, that is a different rural economy. That's a different network of neighbors, and then if you get to the point where you have one farm with 10,000 cows, they probably aren't going to the local hardware store to buy the things they need. They may not use the local vet because they're much more likely to be affiliated with a more vertically integrated supply chain. Are they using the local co-op or are they much more tightly tied to a distant corporation and does that money stay in the community and circulate? We know that it usually does with the 10 small farms versus the one big one. It changes the fabric of a farming community and you hear dairy farmers in particular really talk about that.

Jerusha Klemperer ([17:01](#)):

One solution that that supposedly offers additional revenue streams to dairy farmers while also solving the methane problem of those manure lagoons are methane digesters. You might have heard of something called biogas touted all over the place as green energy; a climate smart solution to the problem of methane emissions from mega dairies.

Patty Lovera ([17:20](#)):

It's the machinery of we put a cover over this lagoon, we know the manure is breaking down, we know it's generating methane, we're going to capture that methane and turn it into a fuel, only starts to work when you start to get to factory farms size. Right there, we have that. There has already been one not

crazy person like me, but like an academic from UC Davis in the ag economics world saying, "Oh, we are looking at a future where that gas is worth more than the milk."

[\(17:50\)](#):

This becomes yet another way that we do not demand a market that pays a fair price, and that part enrages me, enrages a lot of people. If you drop several million dollars, which is what we're talking about, to build a methane digester and then pipelines to carry that gas to wherever on earth you're going to burn it for power, there's a lot of stuff we could do with that money that's much smarter for the climate than this.

Jerusha Klemperer [\(18:20\)](#):

Not all milk operations are the same and there are some dairy cows that are raised in a better way, whether it's better for the animals, better for the environment, better for the workers. How do we find that stuff?

Patty Lovera [\(18:31\)](#):

Like any conversation about food labels and shopping and how to find the best choice, it's always going to be probably situational about what's on offer and then the best you can do in that scenario. In terms of looking for dairy, organic still tells you a lot. There are changes that actually organic advocates, including me, work on to try to make the organic standards even better. It still tells you something. What it tells you, at a minimum, is that animal ate organic feed. It tells you they never got artificial hormones, never got antibiotics, never been irradiated or treated in that way. There's a baseline that organic tells you. There are a lot of organic dairies who are doing it the right way and many of them are putting a grass-fed label on top of organic.

Jerusha Klemperer [\(19:20\)](#):

So if you are going to choose dairy, look for certified organic or certified grass-fed. Both of these would indicate that you'd avoided feed grown with chemical fertilizers and pesticides, that you had avoided milk from cows administered antibiotics and that the welfare practices were somewhat better than in conventional dairy operations. You would still be dealing with an animal product and a product that contributes to significant greenhouse gas emissions.

[\(19:45\)](#):

A practice and certification that takes things even a step further would be regenerative dairy. Regenerative practices are ones that focus on soil health and can actually capture carbon in the soil. Some big dairy companies have made commitments to more "regenerative agricultural practices," but that's not quite the same thing as a certified regenerative dairy or a small uncertified operation that can meaningfully tell you about its regenerative practices.

[\(20:12\)](#):

Certified regenerative is a new label from a greener world. It's one of a few new regenerative labels and it is not only going to address soil management practices and animal welfare, it also has criteria that address worker welfare, but the reality about organic, grass-fed and regenerative dairy is that you need to seek them out yourself. You're not going to find them in most coffee shops or restaurants.

[\(20:44\)](#):

So, there are lots of very good reasons to stop drinking dairy, including one we barely mentioned, which is that somewhere between 30 to 60 million people in the US are lactose intolerant. For years, there was

an alternative available that was pretty popular and nearly nutritionally equivalent. Soy milk. The Chinese have been enjoying soy milk for centuries, drinking it as a breakfast beverage and using it as a foundation for making tofu.

[\(21:09\)](#):

It had a brief reign in the US as the main milk alternative from the seventies until about a decade ago. When I first set out to do this episode, I figured I'd give the OG plant-based milk a bunch of airtime, but in doing research, I found out that in US coffee shops, soy milk is on the way out or totally out as an alternative to cows' milk, so I scrapped that plan and I decided to talk next about what is statistically, for the moment, although probably not for long, the most popular alternative milk and that's almond milk.

Tom Philpott [\(21:40\)](#):

Back in 2014, I just began seeing almond milk everywhere. Picked up a carton in the store and I saw that it had very little stuff in it. There was a scant amount of protein, not very much in the way of any vitamins or minerals. It was just this white fluid that was flying off the shelves and I was seeing it in hipster cafés and in Austin where I was living at the time.

Jerusha Klemperer [\(22:09\)](#):

This is Tom Philpott, who until recently was the food and agricultural correspondent for Mother Jones magazine and the author of the book *Perilous Bounty*, which came out in 2020. Tom is the author of many articles about almond production and almond milk, including his very controversial 2014 piece, *Layoff the Almond Milk, You Ignorant Hipsters*.

Tom Philpott [\(22:29\)](#):

I just had this conversation with myself where I was like, "I don't get almond milk. I don't get its appeal," and I brought that to my editor. I was like, "I'm going to write a piece about how I don't get almond milk," and that's how that piece started. It was just, to me, this curiosity of why is this stuff so popular? I filed my piece and some wag came up with the headline *Lay Off the Almond Milk, You Ignorant Hipsters*, and so that got slapped on the piece and it remains by far the most read thing I've ever written.

[\(23:02\)](#):

I think it's the only thing I've ever written that has officially, "gone viral." It was just a reflection and just a guy with a computer wondering why is this stuff so popular? Part of the reason why I got so much trouble for it was that I was at the time writing a bunch of articles about the California drought and the expansion of almonds and it became this stand in for all my work on almonds and most of my work on almonds was really researched, considered and was making a very specific argument about water resources and power in this incredibly important agricultural valley in California.

[\(23:43\)](#):

I think the main problem with almond milk or with almonds as a substitute for something that's widely consumed like milk is, is that almonds have a really small geographical region in which they can grow. They basically can only grow in Mediterranean climates and they can really only grow on a vast scale in Mediterranean climate area that has access to lots and lots of water. They're a very thirsty crop. They grow best in almost desert-like conditions like you get in hotter Mediterranean climates, so they need a lot of dryness, but they also need consistent and steady trickles of water.

[\(24:31\)](#):



They tend to be industrially produced in areas where agricultural interests are able to grab lots of water and when they grab lots of water, they leave a lot of other potential users of that water, for example, people who live in the region, essentially high and dry. They're actually a fantastic crop. They've been around for a long time. They've been grown in the Middle East and the Eastern Mediterranean and later Western Mediterranean for thousands of years. There's nothing wrong with them per se, but making them into a mass product is really problematic.

[\(25:10\)](#):

No consumer woke up one morning in 2005 and said, "Screw this milk. I want to drink milk from almonds." What happened was there was this vast system that developed that allowed farmers to take control of these water resources in California, essentially massive amounts of subsidized water, and ask themselves, "What is the most profitable use that I can put this water that I've gained control of? What is the most profitable way that I can use it?" They settled on almonds as a choice and it was extremely successful. There was this massive machinery developed over decades to become the Saudi Arabia of almonds in California.

Jerusha Klemperer [\(25:58\)](#):

Tom explained that after all the perfectly shaped and sized almonds get picked out for bags of nuts and stuff like that, the scrappy ones that are too small or weirdly shaped or dinged up, they get shunted off to almond butter or candies and almond milk comes from that same stream of seconds.

Tom Philpott [\(26:14\)](#):

Some genius said, "Let's take some of these almond seconds and crush them really fine and put a whole bunch of water with them, mix them with a whole bunch of water," and I think I calculated my piece that essentially, a small handful of almonds goes into a big jug of almond milk and sweetened and thickened with various chemicals and turned into this facsimile of milk and consumers turned out to like it.

[\(26:43\)](#):

When you're drinking almond milk, you're not necessarily driving the growth of almond production in California, but you're making it more profitable in a marginal way. You're making essentially the waste product more profitable, which makes it more profitable, which does encourage expansion, and something else we should say about California is that the drought there has gotten so extreme and the recurring droughts. Essentially drought is emerging as a new normal in California and that's forcing these almond growers to rely more and more on groundwater, on finite aquifers which are being drained at a very rapid pace.

[\(27:29\)](#):

Around about 2021 and into this year, we have reached the era of peak almond in California. Decades and decades of expansion of almond groves has essentially stopped. That doesn't mean that your almond milk is going away anytime soon, but what that does mean is that you're not going to see an expansion of almonds. It's not going to get any cheaper, probably. It's probably going to get more expensive and whatever market share it has right now in the overall milk market is not going to rise.

[\(28:01\)](#):

We have reached peak almond and the problems that have been driven by the expansion of almond groves in California are essentially the drawing down of these aquifers in a region of the San Joaquin Valley of California mainly where millions of people live and partially really driven by this expansion of

almonds, their access to water is getting more and more polluted as the aquifer drops, agrochemical pollution that's in there and also some naturally occurring minerals like arsenic that are in there get more and more concentrated and in many cases, their access to water at all vanishes.

[\(28:42\)](#):

I did a piece I think in early 2022 about just the shocking rise of private and community wells going dry in California where you essentially wake up one morning and no water is coming out of your tap and you have to mobilize a nonprofit to bring literally a water truck to attach to your house. That's happening en masse in California in this one valley, and the expansion of almond groves are a big factor behind that. It's true that as the water vanishes, it isn't as though the agricultural interests are told, "Oh, you can't use anymore now." Essentially, they have free rein to use as much as they want and it's people who live there who tend to be farm workers, who tend to be low income, who tend to be largely Latino, who pay the price.

Jerusha Klemperer [\(29:36\)](#):

There's something called the Sustainable Groundwater Management Act in California that Tom says will eventually help, but the way it's structured, it doesn't really kick in robustly until 2040 and doesn't give residents of the valley the same level of water access as the farming industry, which leaves us with another 20 years of agricultural interests draining down a whole lot of that water.

Tom Philpott [\(29:57\)](#):

Ironically, the exact same area that we're talking about for almond production, San Joaquin Valley is also one of California's two or three, I think maybe two, biggest producers of dairy, and there's actually a connection between the two. The two are related in that particular area because when you process almonds, you have all these hulls. Basically, the processing machines peel the hull off of the almond, and so, I've got pictures of myself standing next to mountains of hulls. These hulls, they don't become a waste product and go to the landfill. Where they tend to go is into the dairy industry.

[\(30:41\)](#):

They turn out to be a supplementary feed for dairy cows, and so, when you're buying almond milk from California thinking that you're getting away from the dairy industry and not supporting the dairy industry, there is a way in which you are because what that's doing is taking waste stream from this massive, I would say, overproduction of almonds and turning it into another profit stream for almonds, but also a cheap feed for dairy. Just something to consider, but it is certainly true that there's no easy answer to this. If I'm a critic of almond milk, that doesn't mean I think that everyone should suck down all the dairy that they can possibly get their hands on or that we should have massive dairy operations either. There are lots and lots of trade-offs here.

Jerusha Klemperer [\(31:37\)](#):

When Tom wrote Lay Off the Almond Milk, You Ignorant Hipsters, there was a sense that almond milk was this ascendant product. It was dominating the plant-based milk market, and it's a trip to read these pieces from 2014 and see not a whiff, not a mention of oat milk, which is the thing that we all think of now as the dominant, some insist the tastiest, plant-based milk. In 2016, Philpott wrote about oat milk in a really excited way, that it would be great if oat milk could spark an agricultural revolution.

Tom Philpott [\(32:10\)](#):

Well, my first thoughts about oat milk were that when I looked at almonds, what I saw was a crop, like I said before, that could only be grown on a really tiny set of circumstances globally. You can't grow almonds in New York or Iowa or Texas or very many places in the world, but oats are quite a contrast. Oats have been grown for a long time in a whole bunch of different ways in a whole bunch of different geological and geographical contexts. They're this really versatile crop.

[\(32:48\)](#):

When you switch a vegetable grove in the San Joaquin Valley to an almond grove, you're taking broccoli off the market and making it more expensive, but most places where you would grow oats on a large scale would be in places right now that are having really destructive corn and soybean agriculture. The places where it really is going to flourish and be grown on a large scale would be in the Midwest.

[\(33:15\)](#):

It would actually be an amazing thing if they went from just having two crops in their rotation to having a third crop. And oats, they're a grass - that means they're really good at fixing carbon. They don't fix nitrogen, but you can grow them along with legumes like clover and just get all these amazing gains from this kind of agriculture, whereas almond milk is reinforcing this destructive system of agriculture in the Central Valley. Oat milk had the potential to help diversify the Midwest and bring a bunch of ecological gains with it.

[\(33:54\)](#):

One thing that I found when I was researching that article and writing it was that it takes so few oats to make a carton of oat milk that even if oat milk far outstripped almond milk in popularity, even if it took all the market share from dairy milk itself, it still wouldn't require enough acres of oats to really make a big difference in the corn belt. That's something I had to really drive home to my editor during this.

[\(34:26\)](#):

We can't oversell this. This milk is not going to change everything, even though that's what the title of the article ended up being, but it could help change things and at least not do any damage. Oat milk can be part of a push to diversify the corn belt. It can be a spur to converting it, and I think if some of these companies were to commit to getting more of their oats from the US, I think that it could help jumpstart the whole project of diversifying the corn belt and adding another crop to the mix and the research on what it would do to add a third crop to the mix in the corn belt, it's really stunning.

[\(35:14\)](#):

There's great research out of Iowa State University showing that just by adding a third crop to the corn-soy mix, rotating in every third year something like oats, you would make fertilizer use plunge, and there's a huge problem with fertilizer pollution going into water and causing algae blooms in the Midwest. You can make herbicide use plunge because by adding a third crop, you interrupt weed patterns. Crop rotation ends up being a natural herbicide, and so, you could make herbicide use plunge and there's also huge problems with herbicide resistance, with herbicide pollution of water.

[\(35:50\)](#):

There would be massive benefits, but oat milk itself couldn't make that happen, but it could certainly spur it. One of the problems with doing oats in the corn belt is that there hasn't been the research devoted to oats anywhere close to what there's been devoted to corn and soybeans and they have trouble getting the protein content of the oats up to a certain level. They can't get it up to the Canadian level and the level that a lot of cereal manufacturers and oat milk producers would want.

[\(36:20\)](#):

But if companies would commit to buying US oats, it would spur that research and you could get this positive feedback loop that could get us started on the path towards converting much more of the Midwest farmland into having three crops, which would just have so many societal benefits, and so, while I am suspicious of consumer behavior as some panacea, sometimes I'll get a latte with oat milk instead of regular milk, and it can be actually quite good and I feel pretty good about it even though I know that I'm not changing everything when I do it.

Jerusha Klemperer ([36:58](#)):

Almond and oat are the top dogs in the alternative milk market, but they're not the only options. Coconut milk blends are very popular. There are more and more pea milk blends and various other nut milks from macadamia to cashew. One thing that remains controversial in certain places is what we call these alternative or plant-based milks. The dairy industry really does not want them called milk or sharing supermarket shelf space with milk. In this way, it's a similar fight to the one over plant-based meats. The stated concern is that consumers will be confused. I was pretty interested to discover that Patty and Tom have different takes on, some might say, different levels of cynicism about the motives for these pushbacks to the word milk.

Patty Lovera ([37:40](#)):

The culture wars that we are experiencing in our society in general were really perfected in agriculture and people love nothing more than just to bicker about why your choice is wrong. There's just a lot of pent up vegan bashing that's happening here and vice versa. There's a lot of folks who are critical of animal agriculture who lump every dairy farmer in together and don't see any difference with this 100 cow operation that's doing super impressive things to maintain their landscape and sequester carbon and all that. They're putting that in the same boat as a 50,000 head monstrosity.

([38:16](#)):

There's plenty of ammunition on all sides for the culture war which is fueling some of this. There are some super fascinating but super nerdy arguments about the labels and just old laws. We have really old laws that come from the fifties about how you define what you can call something and they actually make sense. If you think about 100 years ago when we started to get the Food and Drug Administration when we started to get pure food and drug laws, a lot of what was driving that was essentially counterfeiting.

([38:49](#)):

The people ground up weird stuff and they put it in the flour to stretch it out, and this stuff wasn't healthy or we've seen that even in more recent times, especially with imports. We have a lot of stuff in our law that sounds archaic, but there's for a reason about - to call a food cheese, it must be made of this, and those laws are still on the books. There are legal fights about what qualifies as milk. Actually, what's in the books right now says... Everyone makes fun of it. It's like it's the lacteal secretion of a cow or it's the lacteal secretion of a mammal.

([39:25](#)):

And so you either have to change that and have that public comment throw down about whether that can come from an almond or you have to come up with a different word for "milk" that comes from an almond, and we're sorting through all that now in the lens of a culture war on Twitter, but if you really get down to what's hurting dairy farmers, that's not helping them by any stretch, but what is hurting them is a marketplace that does not pay them what they need to be paid, and we have a marketplace that does not pay them what they need to be paid because we have a Farm Bill that doesn't protect

them and tells them just to produce more. So the prices can go down, so these buyers can get it for cheaper and then says, "Oh, we'll sell you an insurance policy and you should gamble on what the right insurance policy is to make up for that loss." That's what they're getting while everyone's over here fighting about whether milk can come from a nut.

Tom Philpott ([40:16](#)):

This has become a major, I called it in a recent article, a Tempest in a Cappuccino Cup because for most consumers, it means nothing. Consumers have been conditioned for generations that when I pour some crunchy cereal in a bowl, I need to pour some white fluid on top of it, or when I make my coffee, I should put some sort of white fluid in it to tame the strong flavor of coffee, and so for consumers, that's really what's going on here.

[\(40:49\)](#):

When they see oat milk, they think, "Oh yeah. I don't want to use dairy milk, so this is something I can use for all the uses I have for dairy milk," and it's pretty simple, and you won't find a consumer saying, "Oh, wait a minute. I thought that it was somehow the same as dairy milk or that it had the same nutritional profile." That's a total myth.

[\(41:10\)](#):

For consumers, there is no confusion here. No one thinks they're getting something that they're not. However, the dairy industry, in its desperation over the long and slow decline of liquid milk consumption, is having a meltdown about it and wanting to seize hold of that name. If it's milk, it's got to be dairy milk, and it's a very powerful industry, so it's going to the federal government, going to the FDA and filing these complaints and demanding that the FDA take this action to prevent your favorite oat milk company from calling their drink oat milk and they want you to call it oat beverage.

[\(41:53\)](#):

I think it's ridiculous, and I think it's just a completely misguided attempt by the industry to get its way. It's not going to gain anything from it. It's not going to stop this long decline in fluid milk consumption that goes back to the seventies or even the sixties, long before almond milk became a consumer product, but in fact, overall consumption of milk is not dropping.

[\(42:20\)](#):

People are drinking less milk, but they're eating more cheese and yogurt, and so, what you see is overall dairy consumption is pretty flat. It's not declining. The US dairy herd is, I believe, as high as it's ever been. There are more dairy cows in America than there ever have been before. It's at or near an all-time high, and so, these alt milks really aren't moving the needle.

[\(42:48\)](#):

I'm in my mid-fifties and when I was a kid, my dad would drink milk as a beverage and we were encouraged to drink milk as a beverage. I don't know any adults who are like, "You know what? I'm thirsty. I'm going to have a glass of milk." Milk is almost exclusively consumed by kids or in coffee or in cereal, but it just turns out it's not that fun to drink.

[\(43:10\)](#):

These alt brands are coming in and taking advantage of that, and it's filling a niche, but they're not stopping the machine that is the dairy industry, and I think going back to our conversation about structural change versus individual choice, reigning in the dairy industry through regulation is really

where we have to go or we're going to continue having these massive dairies in the San Joaquin Valley and Wisconsin.

[\(43:36\)](#):

In places like the Northeast where they're driving out small mom-and-pop dairy operations and putting in these giant ones in their place, that's not going to be stopped by these alt milks, and that's where we get to the point that we as a society, through democracy, have to come together and figure out ways to rein in these companies.

Jon Allen [\(44:01\)](#):

I think from the beginning, we've had a holistic philosophy that we can't be preaching organic farming or certain types of coffee practices and then at the same time, turn around and be throwing all that coffee in a styrofoam cup and slinging it out at different cars driving by. My name is Jon Allen. I am the co-founder of Onyx Coffee Lab. We are a specialty coffee roastery here in northwest Arkansas, and I am the head coffee buyer and now creative director for our brand, which includes branding and architecture and menu design and things of that nature.

[\(44:42\)](#):

We've wanted to be truly intentional about the entire process, and that can be from how we source to honestly what we're publishing and the educational platform around how coffee really works because I think there's a large disconnect in the West on how just the coffee industry works. For something that is so large, this beverage that honestly, we probably all consume every day, or most people listening to this, to know so little is very rare and strange as far as an industry goes, and it makes sense. Coffee's not grown here, so there's not an expectation the way corn and soybeans and rice and things like that that we're used to.

Jerusha Klemperer [\(45:25\)](#):

John was talking to me from inside Onyx's roastery, a pretty noisy place, so forgive the sound quality here. We spoke about how Onyx Coffee Lab made the decision to serve oat milk as the default milk in one of their locations based inside of a contemporary art space. In a flip of usual cost structures, instead of charging more for plant-based milk, there, they charge extra for cows' milk, calling it a carbon tax.

Jon Allen [\(45:50\)](#):

While there's a couple reasons why we chose that café for it. The first was there's an ironic twist in that it's now a modern art museum and a performing arts museum, but it originally was a Kraft cheese factory and I say cheese with air quotes, but it was the largest dairy user in Arkansas. As we were planning the café, we just originally thought this would be great. We've been talking internally for a while about part of the environmental impact of dairy and also the other aspects that people don't really think about in café design when it comes to milk like the amount of refrigeration you have to have and therefore the amount of power to even cool that milk and how you deliver it and all these things.

[\(46:32\)](#):

It became clear that this was a match made in heaven where we could give an ironic twist and also move in a direction we were hoping to move as a company. We basically have a very, very low footprint as far as refrigeration goes and offer oat milk and then charge a carbon tax or a dairy tax or any beverage that's going to use a milk-based product, and it's been really interesting.

[\(47:01\)](#):

The reception's been fantastic, and to be honest, I think 99% of consumers don't even know that it's changed. They look at the menu, they might read the fine print, they might not, but the reaction has basically either been non-existent or excited. Non-existent as in no idea they're drinking oat milk right now, or too, excited about the prospect that, "Oh, maybe I can switch and I've just never actually tried it."

Jerusha Klemperer ([47:27](#)):

It sounds like a main motivator for you all was the power and the carbon involved in the energy used to refrigerate the milk. How much of that decision was about dairy production versus oat production?

Jon Allen ([47:43](#)):

Quite a bit. It's hard to split a pie and say how much of my initial thought was based on this, but I think again, looking at that holistic picture, we know a bit about the dairy industry or enough to understand the carbon that's involved in it, and so, there's always been a push towards moving towards different alternative milks. Honestly, I think especially the coffee industry has been really great about championing that movement in general and bringing a bit of awareness to it. That was a big portion.

[\(48:22\)](#):

Then again, I think the refrigeration was the other big aspect. We really spend a lot of time cooling milk and working through architectural design to hide refrigerators, and then refrigerators are letting off hot air in the building, so therefore, you have to add more to your HVAC unit to cool the load, and so it just becomes this cycle that just doesn't need to exist.

Jerusha Klemperer ([48:45](#)):

It can be hard for individuals to feel or see a collective impact of their individual choices, especially when we're talking about a tablespoon or whatever of some kind of milk going into your coffee or latte. I asked Jon about the collective impact of Onyx's decision to default to oat milk, what that looks like in terms of numbers and gallons.

Jon Allen ([49:07](#)):

I wholeheartedly think that every little bit does move the meter, especially when you look, and I can only speak for the coffee industry, but whatever we do as a high-end specialty coffee community will be reverberated five years from now through the big guys. Starbucks offering oat milk with Oatly now and nitro cold brew, whatever flavors they're offering, you may think that we look down on, but it actually gets us excited.

[\(49:34\)](#):

We look at it and we say, "Great. These are things we were doing 5, 10 years ago," but we know that those will start to flow down in this all tides rise, all ships mentality. We think about that a lot. We can feel really good about that influence instead of just thinking through the actual, "Here's the raw data of milk we've saved." Now, those can also start to grow and become exponential.

[\(49:59\)](#):

I can just say from our experience, we have five cafés total. We average 2 to 300 gallons of milk per week per location, and so, with going to oat milk at our most recent location, and it's been open for two years, that's about 21,000 gallons of milk that we basically have not used, and we're obviously one small café inside of an urban museum. It's our least busy café.

[\(50:31\)](#):

I do think that there can be some pretty big impact, but more so than the raw numbers of your local café movement, I think we become the tastemakers for the large companies and the conglomerates, and so it's important to know that when you go to your local café and order something, you're basically voting into that tastemaker series that will then have reverberations five years from now.

Jerusha Klemperer [\(51:03\)](#):

So, which milk has the lowest foodprint? Of the three big players we looked at cows' milk, almond milk, and oat milk, oats do fare pretty well, especially if you choose organic oat milk. Oat milk is humane, nutritious, better for the climate than industrial dairy, better on water than dairy and almonds. An additional plus that I hadn't considered at the outset is that it's shelf stable, and so, it uses less electricity to keep it cold all the time.

[\(51:31\)](#):

Of course, there are lots more plant-based options on the market and things will continue to evolve. What You're Eating is produced by Nathan Dalton and [foodprint.org](#), which is a project of the GRACE Communications Foundation. Special thanks to Patty Lovera, Tom Philpott, Anna Canning, and Jon Allen of Onyx Coffee Lab. You can find us at [www.foodprint.org](#) where we have this podcast as well as articles, reports, a food label guide and more. How do you drink your coffee?

Jon Allen [\(52:08\)](#):

Black, obviously. There's no need for milk when it's good coffee. The real answer to all of this should be that if everyone would just buy actually nice, expensive coffee, which I know sounds super biased, but if you would buy nice coffee, you would end up ensuring that producers would be paid and then you can cut out the cost of milk anyways.