

Jerusha Klemperer:

What do you know about a class of chemicals called PFAS? You can't see them and you can't smell them, but they're there, providing water resistance and greaseproof protection to burger wrappers and pizza boxes. But PFAS are used for lots more than transporting takeout. They're used by manufacturers in items ranging from raincoats to contact lenses to toilet paper, and the chemicals don't just stay in the products. When we dispose of them, they end up in our soil and in our water. And the fact that they don't break down has earned them the name "forever chemicals".

Today, we're headed to Maine to learn more about PFAS and how they've ended up in well water on farms, in food, and ultimately in people's bodies. I'm Jerusha Klemperer and this is What You're Eating, a project of foodprint.org. 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.

Fred Stone:

My name is Fred Stone. We are a three-generation dairy farm. My grandfather started milking cows here in 1914. It was taken over by his son and then it was taken over by my wife and I on February 18th of 1977.

My wife and I met actually showing cows together. 4-H and the dairy industry was quite extensive in Maine and in this area. Of course now it's not, but it was then. Her father had a dairy farm in Limerick where I was close back to 1914. Therefore, I would probably go back over a hundred years longer than that. The hays have been there a long time. Milking cows and stuff is really pretty much what we're always going to do. My wife loves her cows and my wife was the only person that my father would trust with the calves, which I always thought was always funny. He wouldn't trust me with the calves but he would trust my wife with the calves.

Jerusha Klemperer:

My colleague Ryan and I met Fred Stone of Stoneridge Farm at his property in Arundel, Maine just south of Portland. We were there to talk about how the discovery of high levels of PFAS in his well water unraveled his family's life and dairy farm and ended up being the canary in the coal mine for Maine's PFAS nightmare. It has rocked the state for the past five years and the story is still unfolding today.

Sarah Alexander:

I'm Sarah Alexander. I'm the executive director of the Maine Organic Farmers and Gardeners Association. In 2016, Maine had its first case of PFAS contamination on a farm so there was some routine well testing that was taking place in southern Maine. I'm not really sure why they initially looked at PFAS. That wasn't necessarily what they were out to do. Again, they were just doing some routine testing and PFAS showed up. And as they started to trace, well, how did this PFAS get here in this well? It was near a farm field. As they started to trace it back, they realized that it might've been coming into the groundwater from a local farm.

PFAS is P-F-A-S is an acronym for per- and polyfluoroalkyl substances, which is a class of chemicals which contains over 9,000 chemicals that contain a fluorinated carbon atom. These are convenience chemicals, so they're things that create water resistance, greaseproof resistance, stainproof resistance. Teflon is

the most commonly known consumer product that people are aware of and nothing sticks to it, and that's because of these PFAS chemicals and their makeup.

Over the years, the chemical manufacturers that created this initial class of chemicals, Dow and DuPont, realized that these chemicals didn't break down over time and they knew from studying their own workers that they likely caused health problems and health outcomes that were bad. So things like cancer, kidney problems, pregnant women had low birth weight, immune issues. So it is serious and consumers have been aware of it over the last probably 20 to 30 years. Some of us might remember Teflon coming out as like, "Oh, that's a thing you shouldn't use anymore because it can scrape off and could cause health problems." And so Dow and DuPont realized in the '90s-ish that these chemicals were bad news and that they should voluntarily stop producing them before they were forced to do something by the EPA. And so they stopped producing these chemicals but they created the next generations and the next iterations of these chemicals.

Fred Stone:

Our proverbial nightmare started on November 3rd of '16 when we got a letter from Kennebunk Water stating that the water in the aquifer was at 146. The reason that was important was because EPA had sent out an edict that they wanted the municipal water companies to start testing for this. It was not mandatory. It was more of a recommendation. And at that time, the EPA's recommended number was 70. So anything above 70, they wanted the water companies to notify their consumers of their stuff, what was going on.

They then notified us on, like I said, on November 3rd. And I don't believe that they thought that we would go any further with it, but they were wrong. Our little management team got together and consisted of myself, my wife, my daughter, my son-in-law, a close friend of ours who's my veterinarian, and our general counsel at the time. And we presented him a letter and says, "Well, what do we do?"

"You have two choices. First choice is you say nothing because the state doesn't test for this. Or choice number two, you notify the state and notify Oakhurst who shipped milk to them for a bazillion years," and that's what we did. And the state of Maine immediately comes out and runs water samples because they passed. But again, they don't test for this. Oakhurst ran a milk sample. The sample came back on first week of December and our milk number was 1,400, which at the time and for a while afterwards was the highest one in the country, I was told. So we like to be first around here for some odd reason.

Jerusha Klemperer:

The unit on that milk number, 1,400, is parts per trillion at a time when the limit set by Maine public health officials for milk with PFOS, a specific type of PFAS, was 210 parts per trillion. And that above that number, it should be considered adulterated and banned for sale.

Fred Stone:

Anyway, we get suspended and we had a meeting with a dairy, and our lender was a friend of the family's but they are a lender for the farm. And we both all made the commitment that we were going to do whatever it took to try to straighten this mess out because at that time, we didn't know. We were shooting in the dark. We had no clue what was implied. We knew the water was contaminated, but other than that, we weren't sure.

State of Maine in their infinite wisdom of course didn't have a clue and they... I had to laugh but it's not really funny, but they came out and said that they might want to exterminate the whole herd. And I say this, "You know, that's a hell of an idea." I said, "I think what we'll do is we'll take them down to the

compost pile." I said, "I'll put on my dress whites that I use in my show and I'll stand in the front row and I'll take the first bullet and you can shoot the rest." A week later, I get a letter from the state of Maine about suicide prevention. Can't make this stuff up. You just can't.

Jerusha Klemperer:

They eventually found that the point source of the contamination was one of Fred and Laura's largest fields that their dairy cows would graze on. So the Stones started trucking and feed for the cows and continued to test the fields around their property. At the time and for quite some time afterwards, Fred and Laura were treated as though they were a unicorn, as Fred puts it. They were the only ones. And it was probably their fault that the PFAS contamination was likely the result of some bad land management. Or at best it was a head scratcher, some bad luck that they would now have to deal with pretty much on their own.

Sarah Alexander:

Fred, he's been very courageous in sharing his story and really his experiences in fighting back for farmers who are in a similar situation. He really had no support. There was very little that was known about this issue in terms of agricultural contamination or what the impacts were on the animals. There was just very little known and very little support for him, and Fred spent over half a million dollars of his own money to put in water filtration systems on his farm to try to bring in clean feed to try to fix the situation himself. He did not want to depopulate his herd. He wanted to keep his cows and try to continue milking. And he was basically just doing that all on his own and he's ended up out of business, out of money.

As we started to look at the issue from an agricultural perspective and as the state started to look at it, the state started to realize, "Oh. Well, if this has a connection to sludge spreading, we've spread sludge in all parts of the state." The state pulled together a task force to look at what have been maybe some of the most likely cases of PFAS contamination and what steps should the state take in order to address those. So we now have a map that the Department of Environmental Protection put together to outline all of the areas that have been issued licenses for spreading sludge previously.

Patty Lovera:

We have sewage. We got to deal with it. We have wastewater. And so there's of course what comes out of our homes and what goes into, if you live in really any mid-size town or city, it's going into a sewage treatment plant. If you live in a more rural area, you do it at home in a septic tank. But that track of wastewater treatment, some of what happens is gravity. Solid stuff, we'll call it, settles to the bottom, and then there's a fluid portion. And it doesn't magically go away. It doesn't disappear at the end of that treatment process. And so you have water coming out of there that hopefully has been very cleaned up. Sometimes what you're taking out of that water ends up in that solid portion, which doesn't magically disappear. We still have to deal with it.

My name is Patty Lovera and I work on federal, usually, food and agriculture policy issues. I'm old. I've been around a long time so I've seen different pieces of things that are working their way into this PFAS story. This one hits food safety, agriculture, environmental health. There's all kind of traditional stuff that we think about with sewage treatment, and that comes from the fact that there's human waste in there that could be fertilizer for plants that live in the water or in the lake or whatever.

But there's also a lot of chemicals in wastewater. So we use chemicals in our homes, in cleaning products, prescription drugs that come out of our body, stuff we dump down the drain. But there might

be a small factory that is also discharging into that wastewater system. There could be a hospital or there could be a photo finishing lab using chemicals. The array of chemicals in our lives is hard to wrap your head around, but they can end up in that wastewater treatment system. And some things can be neutralized or captured in a filter, but a lot of it can't. And a lot of it ends up in those solids. So what do you do with them? We use animal manure to fertilize plants. Can we use human waste to do it? That was the thinking. Is there a beneficial reuse? And to have that conversation, you just can't really spend a lot of time thinking about the other stuff that comes with it, the chemicals and metals.

Sarah Alexander:

The sludge spreading dates back to the late '70s. And so there are not great records for everything and the state has caveated that this is what they're aware of. Just because it's on the map doesn't mean that there wasn't another area that was spread with sludge. And just because it's on the map doesn't mean it was spread with sludge but it was where a permit was issued in order to spread sludge on that agricultural land at some point. And there are over 700 sites that are on the map that have been issued permits to spread sludge over the last 40 plus years.

At the end of 2021, the Department of Environmental Protection published their map of all of the sites that had been issued licenses to spread sludge. And once they published that map, people started to realize, "Hey, I might be on or near a farm that spread sludge." And they started to test by themselves. So even though the Department of Environmental Protection was going to start testing these sites, some people didn't want to wait because they were worried when they saw themselves on the map.

Adam Nordell:

A friend/customer of ours found the map before really it was getting reported on in the local media and emailed it to us and said, "This is really scary. I hate to be the bearer of bad news, but your farm is on the map."

My name is Adam Nordell and I'm a campaign manager for the environmental health nonprofit Defend Our Health, which is based here in Maine, and also the co-owner of Songbird Farm, which was an organic vegetable and grain farm here in Unity, Maine. My wife and I started farming in 2010 here in our twenties and full of enthusiasm for locally grown vegetables and farmers markets and CSAs. We both come through MOFGA's friendship program and some of their other Beginning Farmer programs. My wife is from Maine and grew up coming to the Common Ground Country Fair here, which is a great celebration of local agriculture and rural living. My wife had close family friends. We ran an organic farm that she spent a lot of time on as a kid. And both of our families kept gardens as kids so we were interested in and a little bit connected to food production from a young age. But neither of us grew up in agriculture and entering into local food production, we have a lot to learn.

In 2014, we found a farm for sale here in the town of Unity. It was called at that point, Green Earth Gardens and was run by a retired Colby College biology professor named Tim Christensen, who started a produce business in his retirement, certified organic, and had recently received a terminal cancer diagnosis and needed to sell the property quickly so he could live with his children for his last few months. That was a very complicated entry into our property, but he was eager to see the farm stay on as a farm and find the next generation of stewards to take care of and love the place that he'd lived in for so long. So the fall of 2014, we moved in.

We'd not been following the PFAS story in Maine, which at that point was centered around impacts on dairy operations, but nobody was talking about vegetables. We'd heard murmurs about PFAS, didn't know what it was, but we got an email that I mentioned from a friend late fall of 2021 indicating that we

might have an issue. And we got some soil science consultants out within a week to take samples on our property. They took a sample off of our well, which served as our drinking water supply and also our irrigation water supply, and they sampled our soil and some produce. The sampling process, the laboratory process, takes about a month. So we sat around waiting very nervously for that month. And then the end of December, we got our results back and our contamination was quite high.

Ultimately, that discovery resulted in our farm completely shutting down. The fields are fallow. We've stripped all of our high tunnels. We're not turning over any soil. Our business is dead and my family is highly exposed to the chemicals. We've been drinking that water for seven years. We've been breathing the dust. We were prepping a lot of land for grain production, especially. The summers are increasingly dry here and as we plow and run the disc harrow back and forth, a lot of dust kicks up and we were breathing that in.

Some of our produce was impacted as well, and that was terrible, terrible, terrible information to get. We were a mission-driven farm. We signed up to provide fresh, clean produce to our community, to provide our community with a connection to a place and to rebuild a sense of hope and stability and our little piece of the vision of sustainability that we all are trying to achieve. And without us realizing it, all of that was completely undermined by some terrible management decisions that were approved in the early 1990s that they used sludge as a fertility source.

Sarah Alexander:

The Department of Environmental Protection is required by the legislature after they put that map out to actually test all of those sites, and they put them into tiers based on the level of risk that they think each site may have. For example, the area surrounding Fairfield, Maine has sludge that came from one particular wastewater district that was accepting paper waste from a paper mill. And they were coding their paper with PFAS and the sludge that they were spreading was nearly 50% waste from this paper mill. They prioritized that as a tier 1 area to start looking at.

And when you look on the map today, and I hope that people will go look at this map, but you can see the entire surrounding area. This is Fairfield. These are all the wells that have been tested, and the ones that are red dots are ones that are above the drinking water standard. And Maine, right now it's 20 parts per trillion, which the EPA has just come out with a guidance sharing that it's basically going to be non-detect. The amount of PFAS that should be in your drinking water should be so low that it's not currently detectable by the testing that is widely available.

And so all of these households have their wells that have been contaminated, and that is largely through groundwater contamination from the sludge that was spread there. Now, some of the sludge was spread in the '80s and nothing has been spread since then. But because these chemicals are forever chemicals and they don't break down over time, they're still in the soil and they've leached through into the water. And so it's a continuing and ongoing issue even if the sludge hadn't been spread recently.

Adam Nordell:

Following our initial round of sampling, we reached out to Maine Department of Agriculture, Conservation and Forestry and Maine Department of Environmental Protection who were as sister agencies are tasked with the investigation of farmland contamination. And Department of Ag came out and tested a whole bunch of our available products. We had some storage crops, sweet potatoes, potatoes, squash, onions, garlic, and that we had a bunch of grains on hand as well. So they tested those and those were basically, those were either all non-detect or basically non-detect, which is to say not

impacted. There was clearly an issue of concern in some of our crops like the leafy vegetables, and some of them looked clean.

Initially, that was hopeful news to get. And this is fundamentally really good news for the PFAS crisis. You can produce safe products on even terribly contaminated land. My land is very, very contaminated. There's a range of contaminated soils across the state, and my farm is one of the hotspots. And even on that land, it's possible to produce clean food. That's really cool. It's really good news. It makes me love plants that grain plants are able to do that. Some of our other crops were able to produce clean products.

So initially, the vision was we have to pivot. We have to double down on our grains which were a majority of our land base but a minority of our income. Spinach has a higher profit margin than wheat flour does, even if you're selling in the local food economy. But there's something we could do. We could double down on our grains. We could focus on our other low-risk crops. We could farm responsibly thinking about the health and wellbeing of our customers, not completely uproot our lifestyle and our business, and find a path forward. Probably take on some off-farm work as well.

And then we got our blood sampled and our exposure level drove our decision-making from that point onward that that is not a safe place to be working. It's not. An active farm on that land is not a safe environment for a child to be growing up in.

Ryan Nebeker:

You could produce safe food, but you could not produce food safely.

Adam Nordell:

Thank you.

Fred Stone:

The health issues that my wife, myself, my son, and my daughter have are real. My blood level is 111. Yours should be 2 or 4 on the outside. My wife's is 91, and my son and my daughters are just under 50. And we have all of the health issues that are associated with them, plus probably some more that I have full-blown Parkinson's where I take the meds twice a day and stuff like that. Although my neurologist says I do a good job of hiding it, but it's still there. There's no history of Parkinson's in my family anywhere. My wife has onset type 2 diabetes, which is another one of those things that is into that. We both have thyroid issues. My son and I both have thyroid issues, so I know it's part of the things. But there are other things too that issues of involvement. So the health issues are real.

Sarah Alexander:

This happened to these farms through no fault of their own. The state told them it was safe to spread sludge. I've heard stories since we've started working on this of essentially sludge salesmen going door to door at farms and trying to twist people's arms, telling them this was their civic duty, that this was the best source of fertilizer and that they needed to do this for their community. And farmers were really pressured into taking sludge in a lot of instances. This wasn't something that they sought out. The Department of Environmental Protection, and I've seen the paperwork for permits that they've issued, it says right on the permit, "This will not cause any water contamination. This will not cause any nuisances for your neighbors. This will not cause any contamination or issues for the soil."

Fred Stone:

This is going to surprise you. Person I'm pissed off probably the most is me because I believed what they told me. Whould not have done that. Thought this material that we were spreading on our fields was safe and that we were doing our civic duty by helping the municipalities by getting rid of their sludge materials. We're always out there trying to cut down our cost of production and what have you, and look at our bottom line and put the pencil to it. And so they were using lime as a neutralizing agent. Our soils tend to run acidic and it was a good way of bringing up our pH in our fields, plus we were getting compensated for the spreading and what have you. So it was a win-win. But PFAS is not a new thing. Everybody knew that this was out here back in the '60s and early '70s, so this should not have been a surprise to anybody. And if people had been doing their due diligence, then this probably wouldn't been an issue. But it was, so shame on me that I believed what everybody was telling us that we should have done.

Jerusha Klemperer:

The Stones worked hard to clean up their milk by feeding the cows purchased feed and filtered water. And over a period of time, they were able to get their cows down to what are called non-detect levels and even sell their milk to Oakhurst again. But then during routine testing of the milk, their PFAS numbers started to climb again. Eventually, they figured out it was because of that purchased feed, and this was evidence that they were not in fact alone in this problem. But they lost their contract with Oakhurst for good and they were back to square one in terms of PFAS in their cows' systems.

Sarah Alexander:

Now, as more time has gone on and we've realized this is a systemic issue, more supports have been put in place by the state Department of Agriculture and the Department of Environmental Protection, especially once they started looking at Fairfield. And so once they brought in clean feed and clean water, the cows will start to get the PFAS out of their system. Just like humans, we're eliminating these chemicals from our systems. Cows, all animals do that, but some animals do it faster than others. So even though they're forever chemicals, they're not forever in livestock.

But the tricky thing is the soil on that farm is still contaminated. And so when we look at the different kinds of contamination, soil contamination versus water contamination, water contamination can be filtered and that's pretty straightforward. And yes, the filters have to be maintained regularly and checked and replaced. But as long as that's happening, you can have a clean source of water.

Soil contamination on the other hand does not have any clear remediation strategy at the moment. So there are plants that will take up the PFAS or some of the different kinds of PFAS, but then there's nothing to do with those plants other than landfill them. And there's lots of ideas out there about how you could remediate soil. But any farm, especially a dairy farm which is relying on pasture or on hay fields to make feed for their animals, if they've suddenly realized, "Oh, half of these fields are contaminated or some set of them are contaminated," now, where do they get feed?

Patty Lovera:

I have a lot of experience with organic farmers. They're not allowed to use these products. It is on the no-go list. To be a certified organic farmer, you are not applying sewage sludge to your land. But you may have bought land five years ago and then run it organically since then. It takes three years. So if you buy conventional land that had been used for conventional agriculture, you have to use organic methods for three years before your stuff is allowed to be sold as organic. And that helps in a lot of ways. It helps people learn how to do it. Hopefully, it's clearing. If there's residues of pesticides that aren't allowed in organic, hopefully that's some time for the land to clear those out. But three years is

not the timeframe we're talking about for PFAS to break down and go away. And no one thinks it's a reasonable restriction to put on a farmer to be like, "You have to find pristine land that never had anything done to it, ever." And that seems to be the timeframe we're talking about with PFAS.

Adam Nordell:

Right after we discovered our contamination, there was a group of four other farms of my generation, my wife and my generation, who discovered similar situations on their properties.

Sarah Alexander:

So after we had maybe three or four farms that had just found contamination, we called together a farmer stakeholder meeting with Department of Agriculture and Maine Farmland Trust and Maine Organic Farmers and Gardeners Association. And what was supposed to be a couple hour meeting to get updates on these farms turned into almost a full day of just listening and hearing what the farms were going through. And so by listening in that first initial session that we had with those farmers, that pretty much laid the roadmap for all of the action that needed to happen moving forward.

And so first and foremost was getting a safety net in place for these farms because many of them pulled their products off of the shelves. And so now they had no income coming in, yet they still had mortgages and equipment loans and employees and other obligations. And so we, along with Maine Farmland Trust, raised money for an emergency relief fund to provide direct income replacement support for these farms with the help of a number of foundations.

And Erin French from The Lost Kitchen who is our neighbor right here and sources from many of these farms, she and the whole effort helped raise almost \$1.5 million for these farmers. And so we've been administering that fund to provide direct income replacement for impacted farms to pay for testing. The DEP is doing testing systematically, but a lot of farms don't want to wait. They want to do their own testing. They want to know. But the cost of the test is expensive. It could be 6 to \$800 per test depending on the test. And then let's say you've got milk and spinach and corn and hay, you might have a number of different products that you want to get tested. Compost has become another thing that needs to be tested because it's being sold off farm, moving to other farms. So we pay for testing for farms. We provide wellness support and benefits, and that's another thing that came directly from the farms themselves.

So not only is it the immediate stress of the situation that they're in, but these farmers and their families and their workers and the people that are on the farm are the most exposed to these chemicals. They could be drinking contaminated water, eating contaminated food, working in the soil where they're breathing in contaminated air, and they might have the highest exposure pathways of any population that's out there.

Adam Nordell:

Together, we were able to push the state and to push the state legislature to respond alongside MOFGA who is very engaged, alongside my current employer, Defend Our Health, who's been working that, and alongside Maine Farmland Trust and other environmental groups. There was a concerted push. They banned sludge spreading outright to look at impacts of wastewater treatment districts to our rivers and waterways. They banned PFAS in pesticides and crucially to set up a safety net for impacted farms.

Sarah Alexander:



So in 2022, we became the first state in the country to ban the spreading of sludge in the state - it can no longer happen here. And we also passed this law on the pesticides to require the chemical manufacturers to register their pesticides to say whether or not they contained PFAS and if they were stored in a fluorinated container, which may have leached PFAS into the chemical. We took those two big steps. And that's in addition to other previous legislation that had been passed in the prior year to phase out all products that contained PFAS in the state of Maine by 2030.

Adam Nordell:

Those laws also begin their implementation with a disclosure provision where manufacturers are supposed to tell the Maine Department of Environmental Protection whether the products have PFAS in them, what PFAS is doing in those products, what purposes it's serving, and how much of the chemical is in the product. And that information will allow DEP to start making decisions which products are crucial to the functioning of society and in which the PFAS is serving a currently unavoidable purpose. You can imagine that industry is pushing back very hard against that. They don't want to stop selling PFAS-laden products to us even if the use is frivolous. Why do we have PFAS in our dental floss? How is that helping anybody? Why do we have PFAS in our cosmetics?

Sarah Alexander:

Until industry is forced to actually turn off the tap and stop creating these chemicals, stop putting them in our consumer products, and they're not going to do that willingly. We know that. And we're seeing really strong pushback here from the pesticide industry, just even around disclosing whether or not their products contain PFAS. Maine has set an example that we can do this. We have the model legislation that other states can utilize. The state of Illinois has been starting to do testing. They are one of the states that has spread a lot of sludge over the years. Vermont and Massachusetts are considering legislation this year that would create some initial protocols and requirements for testing and looking at getting some supports in place for farmers. So we need more states to start looking, but we need to have a farmer safety net in place.

In Maine, we were very fortunate that the state stepped up last year through this bill that we put forward really based on the farmer feedback that put \$60 million into a fund specifically for supporting farmers, impacted farmers. And we've now introduced a federal bill with the help of the Maine congressional delegation modeled on that same Maine legislation we passed last year. We're hoping that it will be included in the Farm Bill. It's been introduced by Senator Collins and Representative Pingree, and they're currently looking for co-sponsors. So I encourage everybody to reach out to your members of Congress and ask them to support the relief for farmers hit with PFAS Act, which would put a federal safety net in place so that farmers are not left holding the bag when contamination is found because it will inevitably be found in other states. If you look for it, you will find it.

Adam Nordell:

Yeah, I think Maine is definitely leading by example and hopefully other states are watching. I think they are. I think there are baby steps towards following Maine's lead in a number of other states. There are PFAS-impacted farms that have spoken publicly in Colorado, in New Mexico, in Michigan. There's another PFAS-impacted farm in Alaska. And certainly, I hate to say this, but there are many, many more that probably aren't aware of their contamination. All 50 states have had sludge spreading programs. That means there is contaminated soil in all 50 states.

Sarah Alexander:

Maine is the only state in the nation that has food safety thresholds in place for milk and beef, and then now looking at some of those other crops. We actually had a meeting with the FDA last fall to encourage them to set some standards and to look more closely at this and to not leave this up to a state by state approach. Because when we think about this, especially when you think about milk, contamination thresholds are set based on the most vulnerable population and who consumes that the most. And so for something like milk, it's children. And children's developing bodies are also the most susceptible to the impacts of these chemicals within their body. And so there really needs to be a federal threshold and safety standards for PFAS in our food system generally, but the FDA doesn't have a roadmap for action. They pretty much told us on the call that until EPA has enforceable drinking water standards, they really couldn't start looking at food safety thresholds.

Patty Lovera:

This PFAS situation, I think, is a case study. One: in how many agencies exist in every level of government, but especially the federal government. And two, just we're struggling to deal with... This is a complex issue and the response has been lackluster, to say the least, because we're just not great at complex situations right now or for a while now.

So, the Environmental Protection Agency is in charge of a couple of things in this story. They are the chemical regulators in most scenarios. So the fact that the many, many, many PFOS chemicals in the PFAS family are allowed to be sold is largely an EPA decision. Often, people point to Europe. They have not completely cracked the nut on this, but they're further along than we are and at least are trying to tackle some of these core issues of should it be so easy to get a chemical on the market, should there be a higher bar of prove safety first as opposed to go ahead and sell it and then we'll see what happens, which is how we do it.

USDA, the US Department of Agriculture in charge of agriculture, five years ago, they would've been like, "What?" Even two years ago, I was having conversations with people at USDA who were like, "PFA what? What are you talking about?" It was not on their radar. It is now, I will say that. We need them to step it up on the research front to understand there's many different PFAS. I'm using that collectively. But individual chemicals in that family, how do they behave in this kind of soil, that kind of soil, this kind of climate, a hot climate, a cold climate? Where do they end up? What are we going to do for farmers? What is the safety net?

Some people are going to keep farming because economically they have to. So what do we do for them so that they do what is probably the responsible thing, which is to pause their farming operations? But most folks can't afford to pause. So what are we going to do for them? Because if we don't do anything for them, if there is no safety net, they have no incentive to test and find out if they have PFAS. The rational response if there's only bad things happen if you test is not to test, right? That's a rational economic response.

And then finally, the Food and Drug Administration, separate agency, they need to do more to tell us what are the safe levels to eat because we are probably all eating some of this somehow in some food and we don't know. We don't have safety parameters.

Jerusha Klemperer:

What about the people eating this food or drinking this milk? Do we need to worry about this? We spoke to Caleb Goossen, MOFGA's crop and conservation specialist who used to spend his time giving advice to farmers and home gardeners on soil fertility, pest control, and disease management, but now

in just over a year has had to become an expert on PFAS and how it moves through soils, waterways, and food.

Caleb Goossen:

Your worst case scenario would be that your private well was contaminated. You worked in an industry that used a lot of these materials and had exposure that way. You chose every single stainproof coating on everything you owned that you could find. And that you just happened to choose a lot of personal care products that had PFAS in them. And you bought all of your food from some specific farms that for some reason had high levels of contamination. And of course, nobody's likely to have all of that happening. But there are concerns about PFAS levels in dust in our houses, and that's coming from our clothing, from our rugs, our upholstery, anything that maybe has had a PFAS treatment. Particularly concerning for children because they tend to be down low where dust settles. They tend to have more hand-to-mouth behavior where they might be ingesting it, not just inhaling it.

I think for the general public, food as a pathway, it's still I think something that we're all trying to figure out here in Maine where we've had some specific instances of heavy contamination in specific locations. That would be rare on a nationwide scale. And having a diverse diet from diverse sources would probably dilute that out for most people to be really, really hard to ever even notice relative to the background exposure that we're getting through these other products.

And I don't know that this is settled, but there have been a lot of suggestions that the packaging that food is wrapped in having PFAS coatings may be allowing migration of those PFAS compounds into the food. And if that's occurring, that's likely occurring at a higher concentration than what would be in the food itself. So essentially, avoiding packaging that is greaseproof and waterproof would probably be the biggest thing, more so than trying to worry about which foods you're eating and where it's coming from other than what that packaging is. And of course, other than specific instances of localized higher contamination, but those are going to be hopefully rare cases. So like here in Maine, we've got a few dairies that are no longer producing milk.

Now that we've started the investigation, we've already cleaned up the general food supply quite a bit. And so the state has already done its investigation of what they classified as tier 1 sites, which were the sites that received the most biosolids and sludge and were expected to be the highest risk for contaminating food supply. They're moving on through tier 2 sites, and they're hoping to get through to even start tier 3 sites. So when I've had folks from the general public ask me about, "Can I even eat food from Maine?" And I say, "I'd probably rather eat food from Maine than from elsewhere because we've started this investigation. We've already removed those most contaminated streams of food."

Patty Lovera:

And then the other piece of this, there are a couple of companies that made this stuff. The DuPonts and the 3Ms in a lot of this fight at some point is going to come back to liability. And who pays for what and then who sues who to get reimbursed for what they had to pay? And that is not going to be easy is what I'll say. That Superfund is the hazardous waste cleanup law. The core element of Superfund, so the official, I'm going to nerd out and tell you the name of the law that started Superfund is the Comprehensive Environmental Compensation Liability and Recovery Act. And it is the mechanism of that law is like, yes, somebody pays for the cleanup. Maybe we can identify a private player, maybe the EPA pays, but that there is going to be lawsuits to get that money back.

Liability is in the name of the law because the mechanism is that we are going to go after the source of the contamination. So there's a bunch of folks who are like, "Oh, oh, oh, oh, who's liable?" Is it the water

treatment plant that spread that sludge? Or is it the factory that discharged into the sewage treatment plant? Or is it the company that made the PFAS? And how you write that law determines how far back that liability is going to go. And so for individuals, who do you sue? How far back do you go and how long does it mean you have to wait? The folks on these farms, they cannot wait 20 years for this stuff to work through the courts. And you could be talking about that.

Jerusha Klemperer:

The question of accountability is such an important one. And while the path ahead isn't clear for farmers, local governments have begun to go after manufacturers for contaminating drinking water. And in June of 2023, DuPont, Corteva, Chemours, and 3M all settled suits to the tune of billions of dollars. That money's going into a fund for cities and counties across the country to test for and clean up PFAS in their water. In Maine, which is ahead of the curve, the state is helping farmers in various ways.

Fred Stone:

Right now, we're working with the state on cleaning up these guys that are out here. So the cows are all on purchased feed. The state's helping us with that. They're doing all the testing. State's paying for that. They're doing blood testing and milk testing and what have you. The idea is to get the cows down non-detect. Once that happens, then we'll have to decide the next step forward. If this was five or six years ago, it would've been easy. You could do the micro dairy thing and you make ice cream. We could do the farm to table with some of the large hotels down in the port and stuff, but it's not going to be Fred and Laura Stone doing it. That's why we're working. We've been working with Maine Farmland Trust to do some kind of a transition on that.

On the cow side of it, we'll still continue to show cows and stuff because that's what we love to do. But as far as actually going out and doing that kind of stuff, no, it needs to be somebody, the younger generation. Fred and Laura Stone are just too beat up, banged up, bloodied up, bruised up. My wife and I have suffered mentally, financially, and emotionally and anything else you could put in there over this. But we did the right thing and we would do it in a heartbeat again.

My farm sign, my daughter and my wife took down. It's over there. It says... And I also have another one that we used to take to the show where we used take, would hang in with us to the shelves that says that Stoneridge Farm produces quality milk for Oakhurst dairy. So those signs came down. And I kept mine, but that really affects you. Another thing I tell people that if they really want to understand us, listen to the late Paul Harvey's story, So God Created a Farmer. Listen to it.

Paul Harvey:

And on the eighth day, God looked down on his planned paradise and said, "I need a caretaker," so God made a farmer. God said, "I need somebody willing to get up before dawn, milk cows, work all day in the fields, milk cows again, eat supper, then go to town and stay past midnight at a meeting of the school board," so God made a farmer. God said, "I need somebody willing to sit up all night with a newborn colt and watch it die and dry his eyes and say, 'Maybe next year.' I need somebody who can shape an ax handle from a persimmon sprout, shoe a horse with a hunk of car tire, who can make harness out a hay wire, feed sacks, and shoe scraps, who planting time and harvest season will finish his 40-hour week by Tuesday noon, and then taking from tractor back, put in another 72 hours," so God made a farmer.

Fred Stone:

He is describing my father, my grandfather, my wife's father. Laura and I, I'm not so sure about but he is describing them.

Patty Lovera:

I actually have sympathy for folks who have to run sewage treatment plants. They have to have water come out that's clean and meets federal standards, and they got to do something with this other waste. So the conversation we actually have to be having, and quite frankly, we stink at having as a society is why are these chemicals going into this place in the first place? I think we're not getting rid of the need for dealing with human waste. So we need to have a pollution prevention conversation about why are we making PFA. If we need a couple of them, why are we making so many and using them in such indiscriminate ways? And can we stop that and turn off the tap on this pollution at the top end to make managing something like wastewater at least a little easier?

One way to think about it, it's like the web, like the spider web. You cannot deal with the problems at the outer ring of the spider web. There's water. Yes, you could filter the water at great expense. But by the time you name all the places this stuff is to eliminate it, just go to the center of the web and stop producing it.

Jerusha Klemperer:

Maine's crisis and the way the community there has managed it, testing, remediating, passing laws, raising money for farmers, doing research, and attempting to sound the alarm on a federal level has provided a roadmap for the rest of the country. The question remains whether or not we're ready to listen and act.

Patty Lovera:

The only way I can cope with it is it an opening to talk about systemic stuff. This is one you are not going to deal with chemical by chemical, town by town, or product by product. If ever there was a case study for a higher level, more holistic response, this seems like it's it.

Adam Nordell:

That's completely mind-boggling. I feel like I live in a different world than I did 18 months ago.

Jerusha Klemperer:

Now, I just kept thinking during your story that farming was such a risky proposition for anyone and that I'm sure you did not go into this lightly. And as you imagined all of the possible ways that your farm could fail, that there would be a thing that you didn't even know what it was or that it even existed...

Adam Nordell:

All of my assumptions have been upended. All of the things that I thought were beautiful and sacred have been undermined.

Jerusha Klemperer:

Yeah, it's a lot.

Paul Harvey:

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"It had to be somebody who'd plow deep and straight and not cut corners. Somebody to seed, weed, feed, breed, and rake and disc and plow and plant and tie the fleece and strain the milk. Somebody who'd bail a family together with a soft, strong bonds of sharing, who would laugh and then sigh and then reply with smiling eyes when his son says that he wants to spend his life doing what dad does," so God made a farmer.

Jerusha Klemperer:

What You're Eating is produced by Nathan Dalton and foodprint.org, which is a project of the Grace Communications Foundation. Special thanks to Ryan Nebeker, Patty Lovera, Fred Stone, Adam Nordell, and Sarah Alexander and Caleb Goossen of the Maine Organic Farmers and Gardeners Association. 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.