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‘Forever chemicals’ upended a Maine farm — and point to larger problem

By Keith O'Brien

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UNITY, Maine — The young couple knew exactly what they were seeking when they set out to buy some farmland in 2014. They wanted a flat swath of fertile soil; at least a few acres of tillable land for the organic vegetables and grains they were growing; and a parcel as close as possible to the markets along the Maine coast that were buying their healthy products, free of chemicals and pesticides.

In Unity — a rural community 90 miles northeast of Portland and 20 miles from the coast — Adam Nordell and Johanna Davis found the property of their dreams. It was 44 acres, and mostly forest. Along the road, at the top of a low hill, about five acres of fields were already being used as an organic farm.

The owner at the time — a retired Colby College biology instructor named Tim Christensen — was pleased to think that his land might go to Nordell and Davis. Christensen had farmed the property since 1995, harvesting his own organic crops, but lately he had grown so weak that he struggled to climb atop his tractor. Tests followed, and then a diagnosis: cancer. It was in his bones and his pancreas and spreading. Christensen, 64, would be dead within months. But not before selling his property to Nordell and Davis. The couple closed on the farm in late September 2014 and gave the land a new name.

They called it Songbird Farm.

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“It was very beautiful,” Nordell said recently. “It *is* very beautiful,” he added, correcting himself. From the fields, he gets to watch the seasons change. In 2018, Nordell and Davis welcomed their first child there, a son. They enjoyed raising him on the land, teaching him about the earth, and perhaps most important, unlike many farmers, they found a measure of success in Unity.

Despite crop failures at times, and a changing climate that is often hard to navigate, the couple felt confident enough last year to reinvest in their business. They drilled a new irrigation well, leased an additional 30 acres nearby to grow wheat and rye, and they had big plans for 2022. They were considering opening a bakery filled with food made from their organic grains.

But late last fall, a customer alerted Nordell and Davis to a potential problem. State wildlife officials had detected high levels of perfluoroalkyl and polyfluoroalkyl substances in deer killed by hunters in the town of Fairfield, 20 miles west. PFAS — commonly known as “forever chemicals” because of their persistence in the environment once present — can be found in items such as cookware, carpets, pizza boxes and paper plates, and the stubborn chemicals have been linked to illnesses, including several types of cancer.

The PFAS levels in the deer in Maine were high enough for an official state warning. People were advised not to eat venison from deer killed near Fairfield. Several farms there had been fertilized in the 1990s with municipal or industrial sludge — essentially, treated sewage — that contained an unknown amount of PFAS. The deer had ingested it over time and should now be avoided, the state announced.

The problem, however, was far bigger than the state indicated at the time. In the 1990s, farms across Maine had been fertilized with the same sort of sludge that had poisoned the deer in Fairfield — and Songbird Farm’s concerned customer wanted Nordell and Davis to know that their land was on the list. According to a state map easily found online, but not shown to the couple before, the sludge was probably in their fields, too.

“Our business was growing,” Nordell said. “We were so deeply in love with where we lived and what our future looked like. We were making plans.” But faced with the map presented by the customer, he and his wife knew what they needed to do. Unprompted by the state or any other regulatory body, they ordered PFAS tests of their water, soil and spinach. The results came back in late December, and days later — again unprompted — Nordell and Davis announced to their customers what they had found.

Songbird Farm tested positive for PFAS in its soil and spinach, but especially its water. The water tests revealed levels of PFAS that were 400 times higher than Maine's state guideline. Nordell and Davis immediately informed customers that they were suspending production at the farm while they tried to learn more — or at least until the state could install a filtration system to mitigate the problem. Then they ordered two blood tests. They couple wanted to know the amount of PFAS in their own bodies, and the results made clear just how pervasive the chemicals were: They had PFAS levels 250 times greater than the average American, higher even than some industrial workers.

"What does this mean for our health?" Davis asked this winter, speaking more as a mother than a farmer. "What does this mean for our child's health? Are we willing to keep putting future generations at risk? I think the answer should be no."

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It would be comforting to dismiss the story of Songbird Farm as a one-off calamity — a confined case of PFAS contamination. The reality is far more disturbing. According to the nonprofit Environmental Working Group, more than 2,800 sites nationwide are contaminated by PFAS — and that's only what's documented. The real total is unknown, and possibly much higher. In Maine alone, the state Department of Environmental Protection is investigating 700 sites once fertilized with the same sort of sludge that likely contaminated Songbird Farm. Many cases are lurking beneath the surface, undetected and often unregulated by an official watchdog.

Despite two decades of knowledge about PFAS and the potential dangers these chemicals pose, state and federal officials, including the Environmental Protection Agency, have been slow to enact meaningful standards or restrict the use of these forever chemicals. Manufacturers continue to use PFAS in countless everyday products, and this family of chemicals — about 4,000 compounds in all — keeps worming its way into the world. In recent months alone, PFAS have turned up in rivers, drinking water, schools, chicken eggs, breast milk. The chemicals are used to increase durability and resistance against heat, corrosion, water and stains, among other things.

"The problem is massive," said Sonya Lunder, a public health expert and the senior toxics policy adviser for the Sierra Club. "The chemicals are being produced and used in completely frivolous ways — such as in stain-proof bibs for babies or in dental floss — and there's just no comprehensive look at whether the chemicals are necessary."

The American Chemistry Council, the trade association representing U.S. chemical manufacturers, said in a statement that companies use PFAS only "to achieve specific, desired technical and functional effects" — effects that are far more crucial than most consumers realize. "PFAS chemistries," the council said, "are vital to U.S. priorities relative to climate, sustainability, defense, and domestic supply chain resiliency." The organization has indicated that although it supports regulating PFAS, it would oppose any plan that would lump the compounds into a single class of chemicals, to be banned or controlled. "All PFAS are not the same," the council has said, "and they should not be regulated in the same way."

In late 2019, Congress enacted legislation requiring companies to report PFAS discharges above certain thresholds, and the EPA has pledged under President Biden to take PFAS seriously. Last fall, EPA Administrator Michael Regan called for greater regulation, including designating the chemicals as hazardous substances under the Superfund act, creating a national PFAS testing strategy, and setting legal limits for safe PFAS levels in drinking water — limits that have never existed for what the EPA now calls "persistent and dangerous chemicals."

Still, environmental groups worry that regulators are moving too slowly.

"The fact is," Lunder said, "we're years away from a drinking-water standard for PFAS chemicals. We're years away from actually having reporting of which chemicals are being used. And the way that toxic-chemical reform has happened in the United States is in this very roundabout voluntary way based on public pressure, public campaigning."

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At Songbird Farm, Nordell and Davis had no intention of mounting any such a campaign last year. Nordell said they didn't even think about PFAS. They were focused on growing their business, tending to their farm and raising their son, who is almost 4.

But now — at the expense of their livelihoods — they're in the fight, telling their story, testifying before the state legislature, demanding aid packages and land buyouts for people like them, and raising awareness about the damage PFAS can do. They want state lawmakers to pass a bill, now moving its way through the legislature, that would compensate farmers financially for crop losses and even buy out their land, which is now, in their opinion, worth considerably less than it was before.

Using maps, property records and information the state has posted online, the couple has tracked the problem at their farm back to May 1992, when a pair of dairy farmers, Amy and Russell Barden — two owners before them and long since gone — agreed to have 4,600 cubic yards of sludge spread on their fields from the Kennebec Sanitary Treatment District, a district that includes a large manufacturer that in the 1990s advertised itself as "the worldwide leader in molded fiber packaging" — including paper plates.

"They were manufacturing the most trivial product that exists on the market, something that nobody thinks about," Nordell said. "You get your paper plates and bowls. You have your chili feed with your family over the Fourth of July. And then it all goes in the trash and you never think about it again."

Amy Barden is now 66, a retired nurse, no longer a farmer, divorced from Russell since the 1990s, and living 200 miles south in Massachusetts. But she remembers the moment the sludge arrived at the farm in 1992. For years, she said, she and her husband had been fighting to eke out an existence at their dairy. "Because you don't make money milking cows," she recalled. Russell could not be reached to comment.

They not only had to tend to the cows, but raise hay and corn to feed them — and for that, the Bardens needed fertilizer, namely chicken manure, yet another expense. That made the sludge feel almost like a gift. The Bardens were assured that it was safe.

The couple had four children younger than 10 at the time, and dreams of going organic. "We wouldn't have done it if we had reservations about it," Amy Barden said. "We didn't want to contaminate our own house, our own lives."

She even recalled testing the sludge for heavy metals before her husband spread it on their fields, but at the time no one was testing for PFAS — chemicals that the current factory owner concedes it uses today.

"Our company relies solely on short-chain PFAS chemicals, which are FDA approved and considered safe," said a spokesman for Finland-based Huhtamaki, which acquired the factory in the Kennebec Sanitary Treatment District in 1999 and continues to manufacture paper products. "Protecting the environment," the spokesman added, "is something that we take very seriously everywhere that we operate."

Meanwhile, in Unity, Nordell thinks about the decision all the time, and other farmers in Maine are starting to think about it, too. At least one other organic farmer in nearby Albion, eight miles from Unity, has suspended operations in recent weeks after discovering high levels of PFAS in her well water — and her farm, she pointed out, wasn't even in a sludge field. It was due north of one.

In the days ahead, lawmakers in Maine will be wrestling with these issues. As soon as Monday, the Maine House could vote on a measure that would ban the use of PFAS-tainted sludge, and lawmakers are working to set aside $60 million to $100 million to compensate farmers like Nordell and Davis for crop losses — and even buy back their farms. In the months ahead, without this sort of help, Nordell worries that there will be bankruptcies. Farmers, he said, could lose everything — and he wishes he could go back to the life he was living before he knew what was in the ground, before he knew what was in his blood, and before he knew what happened to Tim Christensen, the organic farmer who sold him and his wife the land in 2014.

Christensen drove west after the sale. He visited his mother in his native California. He settled some affairs and then, as the cancer took hold of him and he grew weaker, he went to Idaho to be with his oldest son. He died there in early January 2015, hardly three months after Nordell and Davis bought his land in Maine — an ending and a beginning that Nordell thinks about all the time.

“Every day,” he said.