
SYMPOSIUM TRANSCRIPT

OUR TOXIC FOOD SYSTEM: PERSPECTIVES ON PESTICIDES AND PATHWAYS TO CHANGE

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EDITOR'S NOTE

Each year, the New York University Environmental Law Journal holds a symposium on a topic of importance to the Journal and the environmental law community more broadly. This year, our symposium, *Our Toxic Food System: Perspectives on Pesticides and Pathways to Change*, took place on February 28, 2024. We chose this topic because the ubiquitous use of pesticides in our food system has wide reaching impacts and can have dire human health consequences. Our aim for the symposium was to explore these impacts, shedding light on the shortcomings of our regulatory scheme and overreliance on harmful chemicals, and highlight solutions as we work towards a safer and more equitable food system.

The symposium consisted of a keynote address by New York State Senator Brad Hoylman-Sigal and three panel discussions. In his keynote address, Senator Hoylman-Sigal focused on his important work on the Birds and Bees Protection Act to protect people and wildlife from a class of pesticides called neonicotinoids, which was signed into New York law in 2023.

The Journal is pleased to publish a transcript of the three panels as a record of the deep and thoughtful conversations had amongst our speakers. Select portions of the panel discussions have been omitted, either because of missing sections in the transcription or at the request of the speaker. Please note: the Journal's editors

collaborated with the speakers to ensure the transcript is readable and true to the conversation. However, live captioning is for the primary purpose of increasing the accessibility of the event and the transcript is not a verbatim record.

This symposium was made possible by the extraordinary efforts of the Journal's symposium editors, Corban Ryan, Emma Dietz, and Natalia Terezakis, and the generous support of the New York University School of Law's Intellectual Life Fund and numerous co-sponsors¹ within our law school community. We are grateful to the symposium's participants for sharing their insightful perspectives and hope the transcript serves to help advocates envision a food system that can deliver safety and nourishment for all our communities.

Olivia Nohealani Guarna
Editor-in-Chief

I. SOWING EQUALITY: ENVIRONMENTAL JUSTICE PERSPECTIVES
ON PESTICIDES

CORBAN RYAN:

Thank you so much to everyone for joining. At this moment I want to introduce the next panel "Sowing Equality: Environmental Justice Perspectives on Pesticides." At this point I would like to hand it over to Professor Bethany Davis Noll.

BETHANY DAVIS NOLL²:

Thank you so much for the invitation. I'm Professor Bethany Davis Noll here at N.Y.U. School of Law. And I teach a seminar about the role of states and governors in protecting health and well-

¹ The symposium was co-sponsored by: Center on Race, Inequality, & the Law; Environmental Law Society; The Guarini Center; Health Law & Policy Society; Institute for Policy Integrity; Law & Government Society; Law & Political Economy Association; Law Students for Economic Justice; Plaintiffs' Law Association; Public Interest Law Center; Public Interest Law Students Association; Review of Law & Social Change; State Energy & Environmental Impact Center; Student Animal Legal Defense Fund; Latinx Law Students Association.

² Executive Director, State Energy & Environmental Impact Center, New York University School of Law; Adjunct Professor of Law, New York University School of Law.

being. I'm so excited to have this conversation about the role of regulatory law in the protection of people's health, and the impact of pesticides on farmworkers and other environmental justice communities. The heart of this work. So, I'm joined by Professor Joan Flocks from the University of Florida Levin College of Law; Jeanie Economos from the Farmworker Association of Florida; and Miriam Rotkin-Ellman, a scientist. So, we will have this conversation, and I will kick it off with a question you guys can pass to each other. As you answer my question, please tell me more about your work and yourself. Give a little more insight into what you do and fill in your bio. And everybody else who is out there, please read about them. Their bios are available from ELJ.

So, my first question is—just the heart of this: tell me about the impact of pesticides on environmental justice communities and, as I said, tell us a little more about your work and yourself. I will start with Joan Flocks.

JOAN FLOCKS³:

Thank you. And thank you for inviting me to be a part of this panel. I am from the University of Florida Levin College of Law. During my time there and with the College of Medicine, I was involved in many research projects, which were federally funded, on pesticide exposure in farmworkers. And the question of *what is the impact of that* is—it's a huge question . . . That's what years of research has shown . . . I think it's an area that has not changed at all during the decades that I did research. The change that we did see always seemed to come from the ground up. There was not very much change regarding the problems with continuous long-term added pesticide exposure on that particular occupational community, from the top down. It's a very interesting regulatory scheme that covers that and hopefully some of what we talk about today will shed some light on that.

BETHANY DAVIS NOLL:

Miriam, I will go to you next. Please tell us about yourself.

³ Director Emeritus, Social Policy Division, Center for Governmental Responsibility, University of Florida College of Law.

MIRIAM ROTKIN-ELLMAN⁴:

Thank you for organizing this great conversation and for inviting me to speak. I am Miriam Rotkin-Ellman and I work to bring the best science and research to policy and decisions to advance protections for farmworkers and farmworker communities, and I've done that largely in California, but also [federally]. California has regulatory primacy over pesticide regulation, which means that there is a possibility for the State to develop better policies and regulations to protect farmworkers and communities.

So, the question: what we have is a huge, robust literature on the extremely large burden of diseases born by farmworkers and the communities that live around where pesticides are applied. This includes cancer, and neurologic problems, and respiratory diseases, and learning disabilities, birth defects. We can go on.

This science, however, has done very little to actually impact the regulatory regime. Some of the worst pesticides have been brought off the market. However, we see a lot of replacement with other types of harmful pesticides. And you know, people call it the cycle of poison. Neonicotinoids were replacement chemicals for organophosphates which were replacements for organochlorines. Pesticides are designed to be toxic. They are toxic by design. That's what they do. They kill bugs and they are often many times known to be toxic to humans. Organophosphate pesticides are the same chemistry as the nerve agents in chemical warfare.

It is no surprise. Those were known toxic agents and the regulatory regime was all about—continues to be about—how much of that poison folks can be exposed to. It's not a public health approach to how farming can be done in a way that is protective for the workers, the environment, or the community. We have a regulatory regime set up on the premise of poison in the fields.

BETHANY DAVIS NOLL:

Jeannie, what would you like to add? And please tell us about your work.

⁴ Public health scientist, environmental health expert, and community advocate; M.P.H. 2006, University of California, Berkeley.

JEANNIE ECONOMOS⁵:

Sure, my name is Jeannie Economos. I'm the Pesticide Safety and Environmental Health Project Coordinator for the Farmworker Association of Florida. My passion is environmental justice. I have been working for the Farmworker Association since 1996. I've been around for a long time. I was doing work on American Indian rights issues before I began working on farmworker issues. The Farmworker Association is a community-based farmworker membership organization. You are seeing me right now, but I would rather you see the farmworkers because I'm here speaking for them. These people are on the ground, in the fields, in the nurseries, doing the hard work that feeds the rest of this country. Our organization is unique among other farmworker organizations around the country for the heavy emphasis we put on health and safety. Our organization has over ten thousand Haitian, Hispanic, and African American members and we have done pesticide training and research projects, including with Joan Flocks for many, many years. We have a very heavy emphasis on pesticide health and safety but also around heat stress. I will come back to that in a minute.

But to the causes and the root causes of pesticides, I have to say that it's really important for everybody to understand that, at its very core, our entire agricultural system is based on discrimination and exploitation. It's based on the exploitation of the environment and the exploitation of people and labor. That is at the core of our institutionalized agricultural system. One hundred years ago, 150 years ago, this country was almost all small family farms all across the country. Over the years, those farms have become more and more consolidated.

And one hundred years ago, 150 years ago, farmers did not want to use pesticides. They rejected pesticide companies coming in and trying to sell them pesticides. But over the years, through capitalism, corporate control, and corporate consolidation, pesticide companies got bigger. Huge marketing campaigns—millions, billions of dollars going into corporate campaigns—selling the idea to farmers that they had to use pesticides. Until finally, you know, the marketing campaigns began to work. And now most of the farming community feels like they can't live without using these pesticides.

⁵ Coordinator, Pesticide Safety and Environmental Health Program, Farmworker Association of Florida.

And, as Miriam said, a lot of pesticides were created after World War II. They were chemicals that were left over from World War II, used to create some of these horrible pesticides.

Let me also say, I live and work in Florida. A crazy state right now. Florida was a southern state and a slave state. The farmworkers that are in the south are living the legacy of slavery because the first farmworkers in this country were enslaved people from Africa.

It was our system of slavery, and the plantations in the southeast that fed the rest of the country. There would be no Industrial Revolution in the north, there would be no railroad tracks across the country, if it weren't for farmworkers harvesting the food that fed the entire rest of this country. And these were enslaved peoples. So, while most people today think of farmworkers as being Hispanic, the first farmworkers in the United States—in the southeast—were African American or Black. And the majority of the farmworkers that I have been working with for twenty-five years are Black former farmworkers that used to work on the farms on Lake Apopka. A lot of them have passed away. A lot of them from diseases related to pesticide exposure. But they tell me all the time. *Don't forget us. We were the first ones here.* They were exposed to some of the worst pesticides. So that is the at the root of our agricultural system. It's based on injustice.

What is really telling is that one of the farmers in Florida was quoted as saying *we used to buy our slaves, now we rent them.* If that doesn't say a lot right there. Farmworkers are the people who are marginalized—the owners don't care about the health of the workers. All they want to do is have production. And farmworkers have told us, with farm owners, the growers care more about their plants than the farmworkers' health.

BETHANY DAVIS NOLL:

Thanks to all three of you for bringing your perspectives on this. And that's an extremely sobering perspective you raised there, Jeannie. You set up the question in a way that is really interesting for the next question. So, you will have to tackle it however best you can. Because what Miriam said and what Jeannie said, it is all about the systemic challenges to answer in this question.

So, here's the question: What are the main gaps in pesticide regulation for protecting these vulnerable communities and can the

laws be used to fill these gaps? I hear what you are saying about the systemic challenges. I think that's making it hard to even ask this question actually. But let's see what you do with tackling this. And please feel free to pipe up and—you know, I won't pick who goes first. You guys can decide, if you don't mind.

JOAN FLOCKS:

I will just start by saying it's really important what Jeannie brought up with discrimination and the legislation of pesticides. And looking at pesticide regulation, there are at least two important historical things to consider. First is the history of discrimination—that farmworkers have always been excluded in terms of providing regulation of their occupations . . . The reason they were excluded from laws like the National Labor Relations Act and some components of the FLSA . . . is because of discrimination. Basically, it was just outright racism. It was a result of negotiations between southern politicians and the executive branch at the time, and the United States needed cheap labor. That has never changed.

So now that the labor force has changed ethnicity, basically those historical discriminations, exclusions, are still in place. And then I think the other part of the pesticide regulation that you have to bear in mind is the fact that pesticides are regulated by the EPA—from the pesticide registration process to the enforcement of the Worker Protection Standard . . . So, farmworkers as humans have been caught up in this regulation that is geared more towards environmental issues. They are considered part of the environment. We have what should be public health protection instead being governed by a body that is focused more on the environment. We haven't allowed farmworkers to be protected by public health standards or even occupational health standards expanded to other workers. I think just starting with those two places about how pesticide regulation is unique is just a start.

BETHANY DAVIS NOLL:

Miriam maybe you can go next. You set this up really well. The law is structured in a way—it is really harmful already. Is there a way to fill the gaps?

MIRIAM ROTKIN-ELLMAN:

There are definitely unfilled gaps—whether you could use an existing regulatory system to get us to justice . . . I think they raised good discussions about how agriculture is done. However, there are clear examples of how existing authorities are set up with the chemical companies opposed to providing public health protections. So, there is a fair amount of design that is regularly left out of consideration, which is part of the reason we see such a high health burden in communities, and the burden being borne by both the farmworkers and the community as a whole.

So, for example, something really basic like take-home exposure, which means that farmworkers end up with pesticide on their shoes and clothes, is ignored. Well documented in the science; largely ignored. There's an example right now in California where the two different agencies within the State evaluated a pesticide, a carcinogen called Telone used in very high amounts. And the regulatory agency is doing a regulation at fourteen times the amount of cancer-causing chemicals than another state agency says should be allowed. Why? Because they are relying on science provided by the company that financially benefits. And they are not looking at other science. And they have discarded that other science. So, there is example after example where we find scientists finding harm in communities and agencies, and agency scientists, either outright ignoring it, or giving excuses, or not bringing it into any assessment practices. So we have a continuation of seeing the harm in studies. Human community studies, which are known as epidemiology, look at patterns of disease in populations. And that list that I said at the beginning, those are coming from studies done on humans. Those studies are largely discarded in regulatory assessments.

[Two-minute lapse in the transcript.]

JEANNIE ECONOMOS:

This was a great organizational effort to get these improved protections. But if there's no compliance—if there's no enforcement, then what good are these new regulations? So, in terms of enforcement, EPA is ultimately in charge of ensuring that the Worker Protection Standard is complied with. But there are hundreds of thousands of farms, if not millions of farms across the United States. So, in most cases [EPA] delegates the authority to the

states and these are called state-lead agencies. The state-lead agencies are responsible for enforcing the protections for farmworkers. There is a vast variety of types of enforcement around the country. In fact, I worked with Bill Jordan—who is a former EPA employee, who is now with the Environmental Protection Network—and he wrote a paper looking at the discrepancies in different states and levels of enforcement. For example, in Florida we have forty thousand agricultural establishments and only forty inspectors. So even if you have really good regulations, how do you get them enforced when employers, farmers, growers, only really care about production?

Let me give some context. Farmworkers generally work piece rate. They don't get paid by the hour. So they are incentivized to work really fast. How many oranges did you pick? You can pick an eighty-pound sack of oranges and get paid only eighty cents for it. It incentivizes you to pick fast and harvest fast so you can make money. Under those circumstances, you are not thinking about your health and safety. You are thinking about making money. That is really problematic because as supervisors, and leaders, and contractors, labor contracts really are incentivizing workers to work fast and not incentivizing health and safety.

I could tell you a lot of stories. One of the things we do at the Farmworker Association, when farmworkers come to us when they've been exposed to pesticides, we will file a complaint with the [Florida] Department of Agriculture to ask for an investigation. Well sometimes those investigations can take up to six months, a year, two years. Can I give an example? Do we have time for me to give an example?

BETHANY DAVIS NOLL:

Yes. And then I will turn to the next question.

JEANNIE ECONOMOS:

A woman working at a nursery in Homestead was exposed to pesticides. She got sick and was hospitalized, and we filed a complaint to FDACS and the Department of Agriculture did the investigation. After a year we got the results of the investigation and the result was that they said, *yes, this pesticide was being sprayed in the area that she was working but the wind was blowing in the wrong*

direction so she couldn't have been exposed to the pesticide. That disincentivizes workers from coming forward to tell their story. I could go on but I will stop there. We have a lot of examples of how these regulations don't really protect farmworkers.

BETHANY DAVIS NOLL:

I really appreciate the examples of people. I'm glad the audience is able to hear that. My next question is about protection. The EPA plays a role in the protection of safety law, but what can law enforcement do? I think our audience is likely students thinking about a role maybe in the government, maybe in advocacy organizations. And I think we should bring home for them what is the role of law enforcement in building trust? How should that look? And, in addition, if any of you have an example of a good state where somebody has done something where you think it's a model, I think that would be really interesting and helpful to hear about as folks think about their advocacy. You could go in the same order you were just in, if that works, but also pipe up if you have something immediate to say about this question.

JOAN FLOCKS:

The farmworker population is an invisible population. It is a population that is simultaneously absolutely essential to the agricultural industry and, yet, at the same time very much ignored. Again, this has a lot of historical roots in discrimination and the fact that for the agricultural industry, it's important to have the cheapest force available. So the agricultural industry makes a strange bedfellow in that sometimes, when there's increased pressure on immigrants it's sometimes the agricultural industry that comes to the forefront and says, *wait a minute, we need this labor force because we need somebody to harvest our crops cheaply.* The whole public sentiment about immigration and all of the controversy that we see now with immigration, this is not new. We have seen this continuously throughout history during times of economic uncertainty. There will be a lot of very vocal opponents of immigration: *people that come to this country are taking jobs from American citizens,* and so on and so forth. It's not new what we are seeing now but, unfortunately, it is the immigrant labor force that bears the brunt of that animosity. You have to separate the political rhetoric that is

going on now about immigration from what actually drives people to come into this country—the economy in their home countries. People need work and this is work that they can get. Unfortunately, the immigration rhetoric that we are seeing now is in a heightened public fury and we are bearing the brunt of that . . .

BETHANY DAVIS NOLL:

Also the safety laws. The inspectors from the state agency or the federal government.

JOAN FLOCKS:

A short answer to that: [inspectors must] just do the job they are assigned to do.

We have laws on the books but those laws are not being enforced in a lot of cases. Florida is particularly problematic for this. In Florida, we turn to the western states like California and Washington saying they are doing it better. And people in those states are saying they are not doing it well enough.

MIRIAM ROTKIN-ELLMAN:

Do you want to go?

JEANNIE ECONOMOS:

Just really quick. It's a really good question because we are a grass-roots organization. So even though you see me, our community is the farmworkers themselves. Ever since I've been at the Farmworker Association, we have taken complaints from workers about a lack of enforcement or problems in the workplace and we submit them for investigation. During the Trump Administration when the anti-immigrant rhetoric was at a very high level, however—nothing. We got no complaints from people. Because they were more afraid of not having their children come home from school or children coming home and not finding their parents there because of them being deported. You are not going to care about your health and safety when you are worried about separation of your family.

During the beginning of the Biden Administration, we started getting workers making complaints again and letting us know about

conditions in the workplace, but Florida passed SB 1718 last year and it is a very horrible anti-immigrant bill in the state, and it has affected farmworkers. Some people and families are separated. Some farmworkers migrate. For example, they leave Florida for the summer and go work in other places. It's too hot to grow food in Florida in the summertime. I know a family who—they went to North Carolina to harvest for the summer but they couldn't come back because of the SB1718 in Florida. So the father stayed in North Carolina and the documented daughter and mother came back. Now the family is separated.

It's also affecting the agricultural industry. Because the farms want workers and there's a shortage of workers, and the growers have a big influence on the state legislature. We have seen nurseries close down. Some farms closed down, and now farmers are pushing for an expanded H-2A worker visa program, which is very problematic.

I will give you one more example. We hosted EPA here about two years ago. They came to our office to hear testimony from farmworkers, and they took a short tour of the area and were riding with representatives from the Florida Department of Agriculture in their official trucks. And when the workers saw these vehicles with insignia on them, they all thought it was immigration. They were all calling their supervisor and were ready to leave the site because they thought it might be a raid. H-2A workers are protected because they come on a legal work visa, but the program is ripe with labor trafficking.

MIRIAM ROTKIN-ELLMAN:

Very similar to my experience working with agricultural communities, which is the threat of deportation. And immigration policy is a huge barrier for folks trying to access even the minimal protections offered by the regulatory system for poisoning. Time and time again there will be a poisoning event. Times, you know, when fifty workers are impacted and only one person sticks around and goes to the hospital. Everyone else goes home. It's the community groups who try to—who are providing first aid sometimes and giving direct medical care. Because folks are—they go home. They would rather—it is a matter of protecting their families in the day-to-day. And there are folks who suffer the long-term consequences because they never get adequate decontamination and those poisoning

events don't get recorded properly. It's a huge barrier toward even fully assessing the full impact on human health.

And in California, enforcement authority is delegated down to the county level. You have county agricultural commissioners, which are actually employees of the county, not of the state. So in agricultural communities, it's a real conflict of interest of who [the agricultural commissioners] are there to protect and it's a huge point of advocacy for local community groups with their agricultural commissioners, because the laws aren't enforced.

There are many times that there is nobody who can answer questions at the agriculture commissioners in any other language besides English, despite that the majority of folks who need to access those services don't speak English and many folks speak Indigenous languages. I have heard this time and time again with any conversation I've been in, with folks daring to stand up and come to their state regulatory agency and asking for increased protection, and stories where they . . . or someone they know called the agricultural commissioner's office to report an event, and when the agricultural commissioner showed up, they threaten to call immigration authorities.

When pesticides are applied in foods, it is not just impacting the folks directly in the field at the time. It's floating into people's homes. It's going into schoolyards. And people are afraid to report those events because there is always a threat of deportation and incarceration. Until there's reform to the immigration system, we can't even begin to see what kind of protections the existing environmental laws can provide.

BETHANY DAVIS NOLL:

Thanks to all of you for answering that question so deeply . . . This has been such a good conversation and really sobering. And I guess what I want to ask is two things. Two-fold and you need to answer them in a lightning round. One, for you, what does justice look like? Or for the workers you are working with, what does justice look like for workers that are exposed to toxic levels of pesticides and what is a bit of policy or a bit of hope that you have? Where do you think we should put our energy? This can be too intense to even face. Where should we put our energy? What's a policy that you think could help?

JOAN FLOCKS:

I think justice for farmworkers in this case starts with just being seen. Farmworkers have largely been an invisible workforce. Part of it is due to immigration concerns and part of it is due to exclusion from so much protection.

In terms of optimism in this work. I think it's important to look at the ways achievements have been made in that area. More laws and more regulation—especially in light of the fact that we have laws and regulations that are . . . not being enforced—we can see it's not the answer to bringing about change. Change, in this area, some accomplishments have been made by the pressure brought by end users, consumers. And this is what I always tell people. As an American your greatest power sometimes is as a consumer and the pressure that you can put on markets through consumption patterns.

With pesticides specifically there have been changes in regulations that have been brought about by end users. So changes in what pesticides have been acceptable when consumers say, *we don't want this kind of residue on our apples*, for example. Or *this is really dangerous. We don't want to see this anymore*. Sometimes laws have responded to that. So end users—consumers, grocery stores, restaurants—sometimes pressure has been able to be brought by those components and things can be changed.

I think it would be great if we could back it up a bit and say there are people on the other end of this production cycle, the workers, that also need to be considered. You are concerned about the pesticide residue that your child is consuming on an apple. Imagine the worker that first cut that apple in the field. So if we can just back up our considerations a little bit and consider those primary people at the beginning of the food chain. Also consider the importance of media attention and of course political pressure as well from sympathetic politicians. And those are just some great tools.

MIRIAM ROTKIN-ELLMAN:

I will give Jeannie the last word on this. Jeannie are you okay with that? I will try to be quick so you have a chunk of time. All farmworker and farmworker community advocacy I have ever been a part of—and I've done it for close to twenty years. There are folks who come to the state or the state regulators and say there is a false divide between farming and public health. They say *I work in the—*

I don't know. *I work in the grapes. I work . . .*—you know this is how the testimonies start. Because they say, *we want farming, this is our livelihood. What we don't want is to die. And we don't want our children poisoned and we want them to grow up and be as healthy as everyone else has the right to be.* So that's what justice looks like, right. It looks like farming that delivers the same protection that all of us deserve, to the folks who are most impacted by agricultural policies. And those are farmworkers and the agricultural communities.

I put in the chat a document that came out a few weeks ago from what was called the People's Tribunal⁶ held in California. It has a really long list of both the impacts, as well as the asks from communities in California. Over a hundred folks showed up and gave their testimony. It's a really interesting document. I put it in the chat. It came after you all finalized your reading materials. So I'm adding it in for folks to read and get some firsthand pieces.

And what gives me hope is rethinking agriculture from—as putting people back in, so to speak. And any agriculture—if you are involved in any reform of agricultural practices, sustainable agriculture, regenerative, any of these buzzwords, you need to ask the question, *who bears the biggest burden associated with that practice?* And take a look. And regenerative and sustainable practices that increase pesticide use are not where justice lives. Those further this existing paradigm that puts the health burden on the folks who gain the least from our system. And this needs to be reversed. So again, agriculture has environmental impacts and huge health burdens. If we are not redesigning it considering the health component, then we are furthering the injustices we all just talked about.

JEANNIE ECONOMOS:

Thank you, both. What is justice for farmworkers? Justice is farmworkers having agency, access, and being equal to everyone else. Not being seen as any lesser, not even being seen as workers, but to be seen as partners and part of the system. You know, to be able to have access to capital, access to—you know—just to have access to power. To have the same power as anybody else. Not be

⁶ See ROBERT CHACANACA ET AL., PEOPLE'S TRIBUNAL ON PESTICIDE USE AND CIVIL RIGHTS IN CALIFORNIA (2024), <https://www.pesticidereform.org/wp-content/uploads/2024/02/Advisory-Opinion-Feb-2024-Draft-Final2.pdf>.

under the power of big, huge corporate farms or agricultural systems that exploit them.

Since this is for law students, I want to tell everybody: you have to be in it for the long run. You can't expect that you are going to win in a day, a week, a month, two years, ten years. We have been fighting for bilingual pesticide labels for twenty years, and we finally won last year. So if you think you are going to get success, you are going to get success and then you will get knocked down. We won the banning of chlorpyrifos and then it was appealed and went to court and now we are back, not quite to square one. So it's constant. What justice is, is staying in the fight and not giving up. And it's really important. I worked for five years at the Farmworker Association. I got burned out. But I came back because I know—there's a YouTube video called, "Is Justice Worth It?"⁷ I highly recommend everybody watch it. Because also for me, justice is personal. I know these people personally. I know their families. I know their life stories. So to me it's not a job. This is not a job. This is what I believe in. This is what I'm called to do. These people are the people that I know. Their lives and their work.

So what gives me hope and what people can do? There are several bills people can support right now. They are a long shot but people can support them. Senator Booker and Representative Velázquez's one is called PACTPA—the Protect America's Children from Toxic Pesticides Act. It's an excellent bill that we fully support. We know it won't pass as it stands but it's a good effort and we hope that at least part of it will pass. The second thing—there's another bill called the BAN OPs from Our Food Act. We know [organophosphates] can cause learning disabilities and ADHD in children. Geraldean used to tell me, *Jeannie when the white kids start having Autism and learning disabilities we will start doing something about it. But when it's little Black and Brown kids they won't pay attention.* That's important to know. Organophosphates are toxic pesticides. And a preemption bill is being proposed that would preempt any states like New York and California, preempt states from passing any pesticide regulations. Watch for it. There's one called the EATS Act and another one called the Uniformity in Agricultural Labeling Act that they are trying to push into the Farm

⁷ See Micah Bournes & World Relief, *Is Justice Worth It?*, YOUTUBE (May 8, 2013), <https://www.youtube.com/watch?v=yZ9ze-LTEno>.

Bill or other legislation. We need everyone to support the good bills and oppose the preemption bills. And also a heat protection bill called the Asuncion Valdivia Heat Illness and Fatality Prevention Act. Those are things people can do.

BETHANY DAVIS NOLL:

Thank you, Miriam, Joan, and Jeannie. That was an important call to action. I want to echo: keep yourself strong and healthy but keep up this work and find every opportunity you can to advocate . . . Thank you for that excellent conversation. We appreciate hearing all of your perspectives. Thanks, everyone.

II. REGULATION IN THE SHADOW OF THE EPA

EMMA DIETZ:

Hi everyone, my name is Emma Dietz and I'm one of the co-chairs of the Environmental Law Journal symposium. Thank you all so much for joining us today. We are really excited to share this program with you and to introduce you to our next panel and panelists. This panel is called "Regulation in the Shadow of the EPA." In just a moment I will be turning it over to Professor Katrina Wyman, who will be moderating the panel. Among her other accolades, she is a professor of N.Y.U.'s Energy Law and Environmental Law. Thank you so much for joining us today. And, Professor Wyman, I will turn it over to you.

KATRINA WYMAN⁸:

That's right. Thanks to you too, Emma. Along with my many accolades, I co-authored an article with you. So I wanted to thank the organizers for this really great event. And I'm very happy to be moderating the session. We have three panelists here. Peter Lehner has a long and distinguished career [and is currently the Managing Attorney of the Sustainable Food & Farming Program at Earthjustice]. And now, in the office of the New York State Attorney General, we have Lemuel Srolovic from the Environmental Protection

⁸ Wilf Family Professor of Property Law, New York University School of Law; Faculty Director, Frank J. Guarini Center on Environmental, Energy, and Land Use Law, New York University School of Law.

Group here. [Finally, we have Chantal Khalil-Levy, an associate at Weitz & Luxenberg.]

So I'm going to start off, Peter, with a question. I guess a framing question for you. To set the stage. I was wondering if you can provide a brief overview of some of the most important components of the federal regulation of pesticides in a few seconds or less.

PETER LEHNER⁹:

First off, thank you for organizing this symposium. And it's great to see Emma, who worked with us, again. I worked many years with Lem, so it's terrific to be on a panel with him.

I admit, listening to the prior panel, that I almost want to say: listen to a tape of the prior panel. They were fantastic and I'm not sure I have anything to add. They really dove right into the challenges of the current regulatory system. I've had the good luck to work with Jeannie and Miriam. What a great panel you folks are putting on.

Let me offer this. The EPA program has the two statutes that were mentioned. One is the Federal Insecticide, Fungicide, and Rodenticide Act, which has this phrase: "no unreasonable effect." That is implemented through their risk-benefit and cost-benefit analysis. Even though in some ways you would think "*no unreasonable effect*" is a pretty good standard, it has ended up not being that strong. And then in 1996—after the National Academy of Sciences came out with a study that basically said, *surprise, surprise, infants aren't the same as adult men and therefore pesticide limits and chemical limits have to be addressed differently*—the Food Quality Protection Act was added. Under this law, EPA must find a "reasonable certainty of no harm" for food pesticides. When you look at that from a common-sense perspective, that's a really powerful phrase. So it is based on those two phrases that EPA registers or doesn't register what can be put on crops and possible label directions or use restrictions.

⁹ Managing Attorney, Sustainable Food & Farming Program, Earthjustice; Executive Director, Natural Resources Defense Council, 2008–2015; Chief, Environmental Protection Bureau, New York Attorney General's Office, 1999–2007; Lecturer in Law at Columbia and Yale Law Schools; author, *FARMING FOR OUR FUTURE: THE SCIENCE, LAW, AND POLICY OF CLIMATE-NEUTRAL AGRICULTURE* (2021).

And, as I'm sure Lem will talk about, states can do more. Some states, particularly in New York and California—and really only New York and California at any significant level—impose additional restrictions. So a state can prohibit the use of a pesticide in the state or impose additional use restrictions.

So that's the high level: EPA registration but after that not nearly enough supervision or oversight, and a little bit of state regulation on top. But one thing that makes it tricky: Pesticides are unlike other toxic chemicals in that they are *meant* to kill things. If you think of plastic—what you care about is that plastic stays supple and doesn't break; you don't want it to kill people. You just want [the chemical] to keep the plastic supple; so we can try to find non-toxic alternatives. With pesticides, they are meant to kill things. So we shouldn't be surprised they kill things, whether it be weeds or bugs or people. And that makes the regulation of pesticides very different from the regulation of other toxic chemicals, and particularly challenging.

KATRINA WYMAN:

That's very helpful. Lem, do you want to chime in about what states can do and also maybe can you talk also about what local governments can do as well? They are kind of preachers of the states and also what the constraints are. As Peter said, building on the previous panel. Go ahead.

LEMUEL SROLOVIC¹⁰:

All good. Thank you. And thank you to the Law Journal for convening this symposium and inviting us to participate and talk about pesticides and protection of people and the environment from adverse effects. So, as Peter mentioned, the states have the legal authority to directly regulate pesticide use in particular. The federal pesticide law does have a very strong, express federal preemption provision that limits what states and municipalities may do in the pesticide field. But it's very narrow. And it is limited to requirements on the pesticide label. And under pesticide law, both federal and state, the label is very important. There's actually a moniker that

¹⁰ Bureau Chief, Environmental Protection Bureau, Office of the New York State Attorney General.

the label is the law. And the reason for that is it is a federal *and* a New York State violation to use a pesticide in any manner that is different from that prescribed on the label. So what the label says is very, very important legally. And that is the exclusive domain generally of the federal EPA. But outside that domain, states and localities may exercise freely their police power law-making authority to protect human beings and the environment.

The leading case in this area was a Supreme Court case in 1991. The name is *Wisconsin Public Intervenor v. Mortier*.¹¹ In that case, [the town] had a restriction on pesticide use that required [people] to obtain a permit before using pesticides in that town. And it also had substantive restrictions. In the U.S. Supreme Court, [Mortier] lost. The Court said that pesticide use restrictions by local governments are not preempted by federal law. That principal holds, I think to this day, very strongly. So states are free to restrict the use of pesticides; municipalities are free to restrict the use of pesticides. We just can't effect change on the pesticide label that is approved by EPA.

KATRINA WYMAN:

I want to bring in Chantal in a second but I wanted to pick up on the discussion you started here. In the panel before, folks mentioned the EATS Act and potential through the Farm Bill there is, I guess, a move to broaden federal preemption. I was wondering if you have been following what is happening with the EATS Act or any other moves to expand the preemption? And the EATS Act stands for the Ending Agricultural Trade Suppression Act.

LEMUEL SROLOVIC:

There are allies in politics to expand preemption because folks don't like regulations and they find the federal regulating agencies in many ways easier to deal with than state and local regulators. So, not surprised that there are efforts to expand federal preemption in this space. That's the area where state attorneys general agree. There's not a lot of areas we agree on, but protecting state permitting rights is often one we have in agreement and one we often weigh in on trying to limit.

¹¹ 501 U.S. 597 (1991).

KATRINA WYMAN:

We may come back, and I might ask Peter about the EATS Act.

Chantal, we heard from a federal level, but what about from a private litigation perspective? Do you want to just describe the opportunities for litigation in there?

CHANTAL KHALIL-LEVY¹²:

Absolutely. And thank you all for having me here today. It's a pleasure and honor to be in the presence of such great advocates, so thank you. So as a plaintiff, we bring mostly mass torts rather than class actions on behalf of individuals who are harmed by pesticides. So that is a broad range of individuals. It could be farmers who had crops destroyed by dicamba [herbicide] because it was well represented. And this is who I work with: the individuals and farmers or regular people using Roundup at home, who have been diagnosed with Non-Hodgkin's Lymphoma because of their Roundup use.

We use different causes of action, and this is state by state, and it depends on where they primarily use Roundup; but we use the state legislation acts and . . . design failure [. . . inaudible] and we have people succumb to Non-Hodgkin's Lymphoma, which is a type of cancer that recurs, and we typically request [inaudible] given all the evidence we have against—showing that [the pesticide companies] knew exactly how awful their products were and that they are capable of causing cancer. But they have been suppressing that from the public and the EPA.

KATRINA WYMAN:

What are some of the challenges that you typically would encounter in this kind of litigation? And I'm also curious whether any of the statutes in this context intersect—although you are not using the environmental statute. Do they intersect at all with the litigation?

CHANTAL KHALIL-LEVY:

Which sorts of statutes do you mean? The regulatory statutes?

¹² Associate Attorney, Weitz & Luxenberg.

KATRINA WYMAN:

Yeah.

CHANTAL KHALIL-LEVY:

They try to use these statutes to argue preemption. And, fortunately, we won that battle recently. But they are still taking it up. We won it in the Ninth Circuit. And then they took it up in the Third Circuit and were hoping to raise the issue wherever they can . . . but they argued that, because the EPA has approved an active ingredient and approved its label, that there's nothing you can do to challenge it.

And challenges in terms of litigation broadly, there's a huge spectrum. I will try to categorize it into a few categories and try to avoid being too cynical. But there are definitely a lot of challenges, from managing client expectations, to the costs associated with litigation, dealing with the EPA's lack of resources to properly regulate pesticides, and then going up against a behemoth corporation that has billions and billions of dollars behind it. So, in terms of managing client expectations, it takes a lot of time . . . You really have to be dedicated to these cases. We have cases we filed in 2017 without a court date. The court has been extremely backlogged because of COVID.

And the judicial system isn't as efficient as your clients think. We have to explain to them, *it could take years to get to trial*. And they also see all of these articles in the news about verdicts of hundreds of millions or billions of dollars against Monsanto and expect their case will necessarily have the same value. So we have to manage the expectations of clients. In terms of costs, the Roundup litigation requires millions from counsel. It's not only attorney hours that go into litigating these cases; we have many, many cases and trials we are working on, but we also have to pay for document review and data to store the millions of documents. We also pay for medical records. We have to pay for general and specific causation experts travelling, and for court reporters, and travel for hearings. And all of this litigation is on a contingency basis. So we incur those costs and we may not make that money back for years.

It's a huge investment. And fighting with Monsanto—I've worked with all kinds of corporations and I've never dealt with any corporation that operates and litigates like Monsanto. They have the

best firms I've ever seen, and every stipulation to authenticity is a fight and every document is a fight. Nothing is ever easy. They try to make everything as challenging as possible and also draw out the litigation as long as they can.

So part of their strategy seems to just be delay, delay, delay; appeal and, you know, waste judicial time and resources. There's not much we can do. We try to push as hard as we can. We take our issues to the court when we can. But you are dealing with a company that just has this scorched-earth tactic. And just one other issue is—usually when you have billions of dollars in verdicts against a company, they start changing their practices. And we've had \$10 billion in settlements in 2021 that settled about one hundred thousand Roundup cases. Things are very slow.

KATRINA WYMAN:

So Peter, to bring you in, at Earthjustice, what are your priorities in this pesticide conversation? And I would love to hear your thoughts on its potential applicability in this realm and so forth.

PETER LEHNER:

I will jump first to the EATS Act because one thing we [at Earthjustice] try to do is stop bad bills that the industry tries to sneak in as a budget rider or into a Farm Bill or other bill that has to pass—that whole strategy of tacking some little bad thing that might not get close attention onto a larger bill. The EATS Act is part of industry's response to state and local governments imposing pesticide restrictions, such as those governments saying, *we don't want pesticide sprayed on our parks*. Similarly, people may remember that recently California imposed animal welfare standards for pork sold in the state, and the National Pork Producers Council challenged that; the Supreme Court upheld California's power to do that as not violating the Commerce Clause.

So the EATS Act would expand preemption of both animal welfare and pesticide standards by state and local governments. As Lem mentioned, fighting federal preemption used to be a rallying cry for conservatives about states' rights. But in regulation of harm, these same conservative industry or government actors largely don't like states' rights because states may be more protective than the federal government.

And now turning back to the federal government, we talked about how EPA's regulations are hobbled because it uses a pesticide-by-pesticide approach when making registration and other decisions about specific chemicals. And that's an insane way to think about these chemicals that are usually sprayed with many others. There are a lot of different pests, so farmers may want to use several pesticides and spray in huge areas. Most pesticides come in formulations with lots of so-called "inert ingredients" that can also be toxic or make the main chemical more harmful. And unfortunately, producers now often view pest management separately from other aspects of farm management such as crop selection and location, fertilization, and the like.

What is the best way to address the pest challenge? It is not necessarily looking just at federal pesticide registrations one by one. One possibility is more state action. For example, the prior panel talked about, in New York, the Birds and Bees Protection Act, which would ban many uses of neonic pesticide. We worked on that at the state legislative level.

One can also regulate overall pesticide use issues. Jeannie talked about the legislation's Worker Protection Standard, which would affect how *all* pesticides are used. We made great progress during the Obama Administration. Trump tried to roll back the improved worker protection standards, so we sued him, working with Jeannie and others. And the Biden Administration is reinstating the protections. But these are protections that should not be controversial, such as young kids shouldn't be spraying poisonous materials. It's not rocket science; it's not shocking—having better training. This is not complex stuff. What is called the "applicator exclusion zone" really means just don't spray pesticides when people are there. So these standards apply to all pesticides and all applicators and can have a big impact.

Another great opportunity is expanding integrated pest management, a system that also doesn't look at pesticides one by one. It says: okay, you have a pest problem. How can we address that? Maybe by changing cultivating practices. For example, if you rotate crops, the bugs that go after one crop are going to go hungry the next year when that crop isn't there. So you can reduce your overall pesticide use simply by rotating crops.

Or you can plant a variety of crops. If you have bugs that are on one type of plant that eat the bugs on another type of plant, by

having the two plants together you can naturally reduce pests and the need for pesticides. You may still need pesticides, but you will need far fewer pesticides.

So part of what we are doing is pushing that broader approach to pesticide use. But this is tough because that's not how the pesticide laws work. We have to think of other levers. For example, Farm Bill support for integrated pest management. Another lever is greater transparency and disclosure. You can't do any of this if you don't know. In New York, you actually can get some information about the pesticides sprayed near you. In most states, you can't get that information. So you know how much you put on your lawn maybe—although most people probably don't pay attention—but do you know what is being sprayed on your neighbor's lawn? On the farm down the street? In most states you can't find that out.

For example, we are working in Maryland to get state laws to require more disclosure of pesticide use. Reporting and disclosure always encourage better use, better practices when it is on the table for everybody to see: *oh my gosh, look at all we are using*. There's generally some pressure. And public advocacy can be more effective for reducing overall use. So we are trying to open the door to a more progressive—and sensible, really—way of thinking about pesticides.

KATRINA WYMAN:

Do you think it's more likely you will get the more sensible approach you are trying to work toward? Do you see more opportunities at the state level to pursue that approach?

PETER LEHNER:

I would think so for a number of reasons. First of all, who knows what is going on at the federal level these days. We shouldn't be waiting for federal action. Second, we can see that this approach works. When we shift how we think about pesticides overall, and think deeply about how we are using them, we can cut overall pesticide use. For example, in a farm I help manage, we re-thought our monitoring and response approach and were able to respond more quickly to pest pressures and thus significantly cut overall pesticide use. And when I was at the AG's office where Lem is now, we did a project comparing two housing developments that used

pesticides—it's not just agriculture that uses pesticides. One development shifted to an IPM approach with careful monitoring of things that attract pests like water and food and holes in walls while the other stuck to the conventional approach of every two weeks having the exterminator come in. Within months, the IPM housing development had fewer pests, lower pesticide use and costs, and more satisfied tenants.

So it is probably going to be at the state level where we might see progress. The Birds and Bees Protection Act has a waiver provision that DEC will be drafting regulations to describe in detail. This is an opportunity to ask the IPM questions. Do you need this pesticide? How long do you need this? Those are some of the questions that they ask, and if we can divert the standard process of thinking about pesticides to that more careful alternative impact way, we might make some good progress.

KATRINA WYMAN:

So going back to you, Lem. I'm curious about the Environmental Protection Bureau. To what extent recently have you been after in the pesticide field? And I guess I also wanted to ask you, the one person here from state government—and the state, of course, is not a unitary actor in the sense that there are multiple agency. Peter just referred to the DEC but also the Department of Agriculture.

LEMUEL SROLOVIC:

Maybe I will address that in two parts. The multilevel government is what makes us so strong. So the Senator has certainly talked about legislative activity in the pesticide arena. That is an important area as new threats are understood. And having an engaged and active legislature on pesticide issues is a very important thing. And fortunately, we have that here in New York.

In terms of other agencies, Peter mentioned the Department of Environmental Conservation. They're the regulator in the state. They implement the law that requires that all pesticides applied in the state be registered with the state for use. And the department also implements pesticide training requirements and enforces administratively our pesticide laws. Others are [the Department of] Agriculture and Markets; generally they don't have a regulatory view or portfolio. They do regulate seeds. So there is some overlap with seed

regulation and pesticide regulation if we are dealing with treated seeds. But their role is largely the promotion of agriculture and the support of agriculture. But they can play an important role in legislation and better farming practices. I think there's a potential there.

And then the Office of the Attorney General has a number of roles with respect to pesticides. First, we enforce the pesticide laws and other laws relating to the marketing and distributing of pesticides. And we defend the State. So if the Department of Environmental Conservation adopts a regulation the industry doesn't like and they challenge it in court, we then defend that action in court.

So those are kind of the broad roles. Are there differences of views in those different agencies? Absolutely. They come up. As you can imagine, the view of pesticides by the regulator and an agricultural department and a litigator may not be one and the same. But one of the things we do in the Office of the Attorney General is understand the views of the regulation and of the regulators, and understand the views of the Ag[riculture] and Market folks when we bring an enforcement action, and try to take action that both supports their efforts and is done in a manner that generally is coordinated and consistent with how the law is applied. Because that is important in government.

A couple of matters that our office recently has been involved with. End of last year, we announced a settlement with Monsanto and Bayer about claims that the company made about the safety of Roundup—and Chantal talked about the human health risk and problems with Roundup. They have effects, particularly with respect to pollinators and aquatic organisms, and these are non-target harms.

I won't delve deeply into this topic but I want to flag something very important about pesticides, and that is that usually two percent or less of the product's content is an active ingredient, and that active ingredient's identity is disclosed on the label and its percentage. Ninety-eight percent of what is in that jug of Roundup . . . you do not know what it is. You cannot find out. It is considered business confidential by the federal government and the state government. So one of the issues in our action with Monsanto on Roundup involves an inert ingredient of an agent of harm. The practice of pesticide companies over the decades—because, as Peter mentioned, they are poisonous; they are designed to cause harm; they are designed to kill things; and people are naturally cautious about poison—as

pesticide manufacturers like to claim, if they can: “They are safe.” And they are comparable to the kind of thing you use every day. In the Roundup case, Monsanto liked to say that glyphosate was like dish soap—you don’t want your kid to drink it but it’s a product that generally would be regarded as safe. They made claims like that. They had agreed decades ago not to do that in New York. They did it again.

We went after them. And we secured further agreement limiting what they claim about the safety of the pesticide. And we secured close to \$7 million in payment, which is being programmed around the state to support pollinator protection projects. So that money is going to specifically address the areas of harm that this product posed.

Second thing I will just mention very quickly is an initiative focused right now in upper Manhattan that involves the common use of pesticides not legal for use in New York or, in some cases, the use of which is misunderstood under New York law and may only be used by a trained pesticide applicator—but these pesticides are sold in tables on sidewalks, and are quite popular in part because they are effective. And there is a long cultural tradition of using these kinds of poisons to control vectors like cockroaches and water bugs and mice. So over the span of years and months we have done joint criminal and civil enforcement, trying to understand where these pesticides are coming into the market. That, like any street level enforcement, meets with limited success. So in addition to that ongoing effort we also are supporting a community-led education campaign to educate the potential performers of these pesticide applications about alternative means of controlling pests, and the inherent danger of using a poison that is not reviewed, regulated or has its use instructions in a language that you actually can read. So those are a couple of things where we are very active presently.

KATRINA WYMAN:

Very interesting. Chantal, I wanted to ask you, did you know—we talked about the Roundup litigation and I’m just curious what you see as the next frontier in the litigation—sort of en masse litigation? And there’s kind of an interesting question here, which is about some threats to some of the litigation strategies that have been used. So, from an audience member, the question says: there are several state legislatures, including Florida, Iowa, and Missouri, that

are [inaudible] and the question is, what opportunities are there to protect this legal avenue? And generally do you see other kinds of threats at the state level or at the federal level to the lawsuits you and others have been bringing in the pesticide context?

CHANTAL KHALIL-LEVY:

I actually wanted to raise the issue of the legislation that Monsanto and its lobbyists are trying to push in a lot of agricultural states—like in Florida and Missouri, Idaho, Iowa—that are trying to shield Monsanto and other manufacturers from liability. You know, as much as New York and the more blue states are trying to protect the environment and protect health, unfortunately there are many states in the country that are beholden to Monsanto and are trying to pass legislation to protect it. We are doing everything we can with our allies to challenge that legislation. We will try as hard as we can.

If they block failure to warn claims we will try defective design claims and try to find other uses in whatever way we can. In terms of the next frontier—we are just trying to push what we have right now and prevent terrible legislation from becoming law. And we are looking for different potential courts that we can fight in.

And right now, most of the Roundup cases are in the headquarters or multi-district litigation in the Northern District of California. So we are trying to find jurisdictions to bring cases in other states, like in New Jersey or in Pennsylvania, where there have been a bunch of cases there with the manufacturers. Those are the chemicals in Roundup—supposedly inert chemicals—that actually make it easier for Roundup to penetrate your skin and get absorbed into your bloodstream. We are now involving them in litigation to try to keep cases in state court and find different places to file so we can get the cases moving more quickly through the courts.

I wish my colleagues—I wish Robin Greenwald was here to talk about what we are planning to do in the future. Right now we are just trying to get these cases through. And doing whatever we can to get the EPA to review its registration for glyphosate, to consider the new studies. Same thing across the world—try to get regulators in foreign countries to recognize the science and recognize that it has, at the very least, carcinogenic potential. Having 150,000 people develop NHL, which is extremely rare, and yet Monsanto is still denying any relationship between Roundup and cancer. We are

trying to do whatever we can to get the science in front of people and to force change. Keep getting verdicts until we can twist their arm at least into disclosing the carcinogenic potential.

KATRINA WYMAN:

That's very helpful. Now this is for Peter, but others may want to address it as well. So a lot of our discussion has focused on addressing, I would say, the human health and environmental justice impacts of pesticides, and I guess Lem did mention the ecological impacts as well. I was just curious, I would say generally speaking pesticide regulation is not in the environmental law core curriculum currently in law school. I was curious: to increase the profile of this issue, are there linkages that you see that are worth surfacing between other kinds of objectives, say decarbonization objectives? Addressing climate change or adapting to climate change? Or, you know, Peter, in the way you were talking about more integrated approaches to pest management, I was thinking about how people who are concerned about animal welfare, for example—some of those approaches you were discussing would really resonate with people concerned with animal welfare. In some cases, people talk about the welfare of insects as well. I was just kind of curious. Do you see in this context a broadening of the kind of coalition or the interests that are affected or that are seen as relevant to pesticide regulation?

PETER LEHNER:

Yes, I think that's a critical part to it. But first, I will go back and note one of the real challenges with environmental law generally: most environmental law courses ignore agriculture. Which is why at the Environmental Law Institute environmental law bootcamp I urged them for years to address agriculture. And we now have a separate section on agriculture. And that's why I teach a class on agriculture and environmental law: because the Clean Air Act and Clean Water Act treat agriculture differently from other industries . . . and the Farm Bill is very important, as are bills like FIFRA that most environmental courses ignore.

And yet environmental courses do talk about the Endangered Species Act, but they don't usually focus on the fact that one of the largest threats to biodiversity overall is pesticides. The Senator [Hoylman-Sigal] talked about neonics and pesticides and how they

go into the ground water and kill the fish and the amphibians and others that may be there. And EPA has done a terrible job in its review of pesticides (that I talked about earlier) looking at their impact on endangered species. So there have been a number of lawsuits that we—we and the environmental community and others—have brought against EPA. And they all slightly differ but basically argue that EPA doesn't look at the impacts of these poisons on endangered species as they are supposed to. And in many cases, they have been quite successful because courts have said, *yeah you got to look at them*.

So I think once you start looking at pesticide use more broadly, you see it really affecting everything. We talked about human health for workers and for those who live nearby. I don't think we talked quite enough about the residue of pesticides on food, but really once you start looking it's everywhere and hair-raising. And then you look at the EPA process we talked about and you think, no wonder we can't trust that much.

The good thing is, many of the practices that I talked about that could reduce pesticide use also may reduce carbon—reduce net greenhouse gas emissions. For example, rotating crops as we talked about, or cover crops—crops planted over the winter that keep the ground covered—will not only reduce pesticide use but will reduce fertilizer use. And fertilizer is a big climate change driver. The production of fertilizer is hugely energy intensive. So a lot of carbon is lost in the manufacturing process, and then farmers tend to put on more fertilizer than they need, and much of that either runs off to the water and that causes all the water problems that I'm sure everyone has heard of—the dead zone and harmful algal outbreaks—or it goes up into the atmosphere as nitrous oxide, which is three hundred times more potent than carbon dioxide. So absolutely, these practices that can reduce pesticide use can also reduce the climate impact. And they will also make farms more resilient to climate change, to the extreme weather we are seeing as the climate changes.

And one of the interesting challenges we have is that we obviously want to have a bit of a safety net because food is really important and weather is fickle. But we have such a generous safety net in this country that it's become almost an incentive for risky behaviors. By contrast, farming in other countries where there is less subsidized crop insurance, there are less risky behaviors. We don't

have the right incentives in the Farm Bill for risk mitigating behavior, but if we did many farmers would reduce the risk of climate impacts using practices that also reduce pesticide use and net greenhouse gases. Not entirely, but there is enough overlap so we could build momentum.

KATRINA WYMAN:

I was wondering about the linkages with other issues. That's very helpful and informative. I'm just realizing it's 11:55 and we were supposed to end at 11:50. I really have enjoyed this conversation and I really want to thank the organizers Emma, Natalia, and Corban and also to thank Chantal, Lem, and Peter. Thank you so much for joining us and look forward to further conversations. Thank you so much.

EMMA DIETZ:

Thank you all so much for joining us, and thank you to our panelists. Comparing the role of private firms, non-profit organizations, and governments in this space has always been a great interest of mine, and I hope we can find space for coordination in the future, given some of the overlaps and the shared missions that we all talked about on this panel today. Thank you so much. Now we will take a break until noon. And we will be back then with our third and final panel.

III. GROWING SOLUTIONS: PESTICIDE PRACTICES FOR A SUSTAINABLE FOOD FUTURE

NATALIA TEREZAKIS:

Hello, my name is Natalia and I'm one of the three symposium editors for the Environmental Law Journal. Corban, Emma, it's been a pleasure putting this together with you both. And thank you all for joining. Up next is the last panel: "Growing Solutions: Pesticide Practices for a Sustainable Food Future." Professor Margot Pollans will be moderating this panel. Professor Margot Pollans teaches at N.Y.U. and is also the faculty director at the Pace Food Law Center. At N.Y.U., she teaches classes on food systems and environmental law. Thank you.

MARGOT POLLANS¹³:

Thank you so much. I'm so happy to participate in these conversations with the Environmental Law Journal. I will jump right into it. I'm so excited to moderate this conversation with these three fantastic panelists. We have Professor Laurie Beyranevand from Vermont Law School and Professor Valerie Watnick from Zicklin School of Business at Baruch College, and Meredith Stevenson from the Center for Food Safety. Very excited to hear their perspectives. I wanted to jump into one of the themes, the regulatory environment. Both prior panels spoke about the wide variety of ways in which legislation is not working well for all sorts of reasons.

I thought I would start by asking not about regulation at all, and asking you to think more broadly beyond government intervention about what you see as the best leverage points for pushing systems change. If our primary goal is reducing overall levels of pesticide use then where should we be focusing our attention? Is it on farmers? Is it on pesticide manufacturers, on seed manufacturers? On consumers, retailers, processors? Where should we be focusing attention? I would love to hear from all three of you on this question. Meredith, do you want to push things off?

MEREDITH STEVENSON¹⁴:

Sure. It's great to be the first one to speak. So pesticide use has been increasing drastically in the last decade. There are such substantial changes. I think it's important to look at the source of these changes and what is driving this incredible increase in pesticide use we are seeing. A lot of this is coming from GE crops. Since the mid-1990s, there's been a massive explosion in these commodity crops planted on large-scale operations. And they are paired with the pesticides. So the GECs are genetically modified to be resistant to pesticides and they are being used for longer period of time, earlier in the growing season, and this is causing a lot of damage to our environment, to our soils, to our endangered species, and to our public health. The list goes on and on.

¹³ Professor of Law, Pace University Elisabeth Haub School of Law; Faculty Director, Pace Food Law Center, Pace University Elisabeth Haub School of Law; Adjunct Professor of Law, New York University School of Law.

¹⁴ Staff Attorney, Center for Food Safety.

So if I were going to make a big change, that's where I would start. I would look at those seed manufacturers and look at the agrichemical companies that are creating these products and substantially increasing the pesticide output.

MARGOT POLLANS:

Thank you. Valerie.

VALERIE WATNICK¹⁵:

[Audio difficulties.]

MARGOT POLLANS:

I'm having a little trouble hearing you . . . I will turn now to Laurie and hopefully we can get Valerie through clearly soon.

LAURIE BEYRANEVAND¹⁶:

Thanks, Margot. It's nice to see you. I was thinking about this question really hard as I listened to the panels this morning and one thing struck me. To pick up on one of Jeannie's points, I think farmers have become so dependent on pesticides that it feels like that's a hard leverage point right now. Not impossible, but if people would like to move the needle quickly, that's probably not necessarily the way that that will happen. I always think that consumers have a lot more power than they think they do, and even more than people give them credit for. So, to get consumers to care about pesticide use, there are a lot of things happening right now in the food system that you could leverage with the idea of pesticides being unsafe. If you consider even just heavy metals in baby and children's food and just all of the news that we have been seeing about that. That issue in conjunction with the fact that those foods also probably have pesticide residues (even though the pesticide residues are hopefully at the levels that have been set for their tolerances), that's a toxic soup we are feeding to kids.

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In my mind, getting consumers to understand the dangers associated with pesticides, not just for their own health—that’s an easy way to get to them—but also for the health of the workers that are producing their food, for the health of the planet and the climate, and to be thinking about all of those things together. If consumers start pushing for pesticide-free foods or food with less pesticides, then the market is going to have to adjust because that’s what the market does. So, in my mind, consumers are one of the most important leverage points.

MARGOT POLLANS:

I’m glad you brought up consumers because that’s a perfect segue to thinking deeply about the role of consumers, and they have not been as much a part of our conversation yet today, so I would like to explore that a little bit more. I want to start with a different regulatory regime that hasn’t come up today either, which is organic labeling. So, I think for some people, this is a response to the pesticide problem. I would love to hear all of you reflect on to what extent you think organic labeling is a tool that can address the problem. What are some changes you would advocate for in organic labeling to make it better at addressing the problem? . . . Please, thank you.

MEREDITH STEVENSON:

Absolutely. We are focused on the Organic Food Production Act, concentrating on regulation and attending meetings. So I’m a fan that it can reduce pesticide use, and it does. OFPA prohibits the use of pesticides so if a synthetic pesticide is going to be used, it has to go through a pretty long, difficult process with the national standards board, which is a board that has fifteen members from different areas of the industry. We have organic growers and handlers and non-profit handlers that the board needs to really review that pesticide and determine if there is a natural or organic alternative and determine if that pesticide will cause adverse health effects. And then, review whether or not it is kind of aligned with other organic standards like cycling of resources and biodiversity.

So, it goes through a pretty rigorous process and review and very few even make it on to the national list which is just a very short list. And that list is reviewed every five years to see if those synthetic pesticides are still needed or not, and they are reproached

if they are not needed or are causing other problems. So, studies have shown this is reducing the amount of pesticide in the foods. There are studies that show even after a week of eating organic food a person has less pesticides detected in the body so it's absolutely effective.

But if I were going to suggest, . . . I would look at the relationship between the national organic standard or the National Organic Program. So currently, there's not really very strict rules on how fast the NOP needs to act on the NOSB recommendations, so I would encourage for it to be required for the NOP to respond within sixty days, to have even more public involvement, and just work on those processes. But other than that, the organic programs have been very important for reducing pesticide use.

LAURIE BEYRANEVAND:

I would totally agree with Meredith. I think that organic labeling and organic food obviously have a great potential to reduce pesticide use. The biggest concern that I have about that is the misconception consumers have that there are no pesticides used in organic production. And particularly when we see really big companies entering the organics market, getting them to understand that not all organics are the same. There are some really great organic producers that are not using any form of pesticides and are really diving into integrated management and some other practices that Peter was talking about earlier. But there's no way to know that from the organics label. You would have to rely on the producers to provide more information about their product than they are already doing. And some of them probably do that voluntarily, just to be able to say more things about their product.

But, if I was going to propose a change to the organics label, it would just be to provide more information to consumers so that they are better able to assess what production practices were used for that particular product. And I know that that is a road that FDA and USDA don't want to go down. That's not something they typically require in disclosures on product labels. But increasingly, we are seeing wide variations in production practices. And the labels and even the voluntary certifications that we have available don't really capture that. I worry that consumers put more faith in thinking *I'm buying organics and doing the right things* when maybe that's not necessarily the case. So, I think more information is better. I also

think consumers can drive that push for more information, even if it's not a regulatory change. It could be that companies just start responding to that by providing more information about their production practices, and then consumers can start to access which ones they want to support and which ones they don't.

MARGOT POLLANS:

I have to say, I got more organics optimism than I was expecting. I maybe want to push back just a little. You both have flagged inadequacies, but I will throw out an equity concern. What the organic labeling regime does in practice is create a two-tiered food system which some people can afford to access and others cannot comprehensively. So, what do you think about that? Is that a fatal flaw? Are there mechanisms available to mitigate that concern?

LAURIE BEYRANEVAND:

I don't favor any food system that doesn't provide equal access to people for the foods that they would like to be able to purchase. My worry about it is the same worry that I said earlier, which is as you start to see these big players enter the organics market, it obviously drives prices down, which is good. So, people are better able to access organic foods and they are becoming more widely available even in places like Walmart and BJ's, and are not necessarily significantly more expensive than their conventional counterparts. But what worries me about that is the degradation of the organic certification altogether, and the push from the big players in those markets to make the standards less rigorous than they are currently. That push to drive the standards down, however, can make organics become more affordable. So, I don't know. I think that's a tough question to answer. Certainly if people want to be able to buy organic food for all the reasons that you might want to purchase organic food, it should be affordable and available, but I hate to think that it becomes affordable and available because it's not what we envision organic food to be.

MEREDITH STEVENSON:

I just want to add—that is a really difficult question . . . At the Center for Food Safety, I'm working on a case with E-labeling. For consumers that maybe don't have quite enough money to purchase

these organic products or struggle with their grocery bills, I think GMO labeling is important. You are able to opt out of crops that are produced with GE crops that are part of the Roundup crop.

Some of those will be at the same price as other products; it's just they are going to be labeled. So, we are continuing to work on GE labeling. We have made some progress there but we are not all the way. But at least that's a step in the right direction for consumers that can't afford products.

VALERIE WATNICK:

. . . I'm glad that you can hear me now . . . What I said in answer to the first question is I think change is incremental and we need consumers and media and events like this. All of that and regulatory efforts come together to create slow incremental change in the regulation of pesticides to promote food safety. I wrote in 1996 my very first law review article that schools shouldn't be spraying students' desks with pesticides right before they came in from lunch. At the time, this idea was outlandish—people said there were bugs we had to manage.

Fast forward to today where organic products are growing and concerns about pesticide use is more present. I think organics are great because they help create attention and awareness and we need this. Anything we can do to create awareness is terrific. I do think with regard to organic products, they could be labeled a little better. I wrote a paper a few years ago about the process/product distinction in organics. Organic production does not guarantee that the product is free of pesticides. Rather, it creates a guarantee about the process. We need to make consumers aware of this. However, the organic process makes it likely that you and your family take in less pesticides. So that's a good thing. Organics can help but I think all of those factors—media, writing, regulatory efforts, consumer pressure—have to come together to make our food system safer.

MARGOT POLLANS:

Thank you. And I'm so glad we can hear from you now. I want to shift gears a little bit to think about one of the lurking barriers to change in this area, which is rhetoric about food security. So on Bayer's website they make a broad claim about crop protection, which is generally their pesticide-coated seed products. They say

that it plays a critical role in protecting the food supply, and they claim crop protection safeguards around thirty percent of yields worldwide. That's 550 million tons or the equivalent of food for more than two billion people. So, embedded in the claim is that it's essential to the global community. Without asking you to defend the empirical claim, I want to just ask you to reflect on how we should think about questions of food security in the context of debates about how much pesticide use is acceptable.

MEREDITH STEVENSON:

I can start. So, this is one of the longest myths of industrial agriculture: that somehow genetic engineering and pesticides are needed to feed the world, and that they are needed for food security. This is absolutely false. Over seventy percent of these GE crops and these crops that are having pesticides used on them, those go to animal feed [. . . inaudible]. They don't even go to feeding the population and these crops are engineered not to increase yields, not for a default tolerance and other change-related issues. They are engineered. A vast majority are to engineer the best side product. So I would argue that food security would be way more directly addressed if we addressed the waste. About over forty percent of our food in the United States [. . . inaudible] is wasted. The challenges are different—a third is wasted worldwide. A lot of that is because of infrastructure. Lack of access to road and lack of access to markets and food storage methods. But I would start with food waste, not with increasing the pesticide use that is killing pollinators.

You mentioned the coated seeds. Those are killing pollinators and coated with pesticides that end up in every single part of the plant including the pollen and the nectar. I would also like to look at meat consumption. By some studies, reducing meat consumption would increase our availability of food by up to fifty percent worldwide. So that's a pretty heavy hitter if we are really worried about food security in this world. I would not turn to pesticide use.

VALERIE WATNICK:

Also just to take off on that, using pesticides to grow our food crops has all sorts of externalities that need to be accounted for in assessing the value of our current system: the impact to human health, pollution, climate change, and runoff in the water. There are

so many externalities to be accounted for, and a better approach would be an integrated pest management approach—an approach actually called for in Federal Insecticide, Fungicide, and Rodenticide Act as a pest management approach. That approach starts by saying, *what is the least amount of pesticide we can use to produce the food?* Start from that approach rather than this massive onslaught and use of pesticides across the board. Our agricultural pesticide use is also not doing the best job over time. Pests build up resistance over seasons and farmers need more and more pesticides to do the same job.

LAURIE BEYRANEVAND:

I would echo what Meredith and Valerie just said. We haven't invested enough into research to see how to be able to counter a claim like that. So, we don't know what the potential of integrated pest management is on scale, at the same scale we used pesticides.

It's hard to be able to say whether that's true or not true when we don't know what the alternatives are, and what the potential of the alternatives is. I know we have on a smaller scale, but certainly not at a large scale. And to think that pesticides are the answer to global food security, Margot, I think that brings up the same question: the question of a two-tiered food system. So, if pesticides are the answer to global food security, does that mean people have to eat foods that have been sprayed with pesticides and that we have to expose farmers to pesticides and the farmer community to pesticides? I think it's a false solution to suggest this is something we need without really investigating seriously what the alternatives to that might be.

MARGOT POLLANS:

Thank you. Thinking about one category of alternatives, Meredith, I know you have done some work in the past on seed saving. Could you just describe a little bit about what that is and what it means and how it fits into this conversation?

MEREDITH STEVENSON:

Yeah, we have worked in the past on seed saving. It's not really one of our focuses right now, but essentially that's just keeping the

seed within the community. Today, we have a seed crisis over the past few decades. This has fundamentally shifted that the seeds are a common good and part of the commons. Instead, we have intellectual property rights and patents that are supporting the notion that the agricultural companies can own the seed and privatize and commercialize it.

That's a scary thing. In fact, over fifty percent of all patented seeds in the world right now are owned by just ten companies. So as a result, the control of seeds and resilience of communities, that's been shifted to the corporations—the control of the seed—and in turn communities are losing that knowledge of breeding seeds to address these upcoming issues of climate change. To breed seeds for the geographical limitations communities have; whatever conditions they have. So, this has also been just a crisis of diversity. Over the last eighty years in the United States, we have lost over ninety percent of our seed diversity. It's a similar story in the rest of the world. So, just keeping the seeds, allowing communities to keep breeding them, and to keep passing on that knowledge—that is giving them back that control over their future, over their food security, and also getting communities off the pesticide treadmill. The treadmill that you are part of the system, have to buy the seeds from the corporations—which, by the way, every year they are getting more expensive—and bringing them out of business. So, bringing it back to the local community and bringing it back to farmers and reducing overall pesticide output.

MARGOT POLLANS:

We are flagging a really important theme here for us about monopolies on knowledge and one thing Laurie pointed out about Bayer's claim—it is hard to respond to because the right research hasn't been done to respond to it. So, we all have very strong gut instincts that it's not true and it doesn't make sense in the context of any of our work, but the research isn't out there. So, in addition to controlling the seeds themselves, Bayer and Monsanto are doing the research that is driving this, and that's something we need to break into as well. On that theme, Laurie, you have done work on lab grown food and that it's a technological issue with intellectual property issues at stake. Can you speak to how you see that fitting in on the pesticide issue in particular?

LAURIE BEYRANEVAND:

Honestly, I'm not sure. As I was thinking about this question and what the impacts on pesticide usage could be, I don't know. I don't feel like I have a great answer to that.

Similarly, I don't think enough research has been done to fully assess what the life cycle looks like for lab grown food, and maybe that is different for lab grown meat varieties versus other types of lab-grown food. I know in the news there was an article about how lab-grown food was going to destroy farming and agriculture but save the food system and save the planet. And there is a retort to that, obviously. I always get worried when somebody has a technological fix for what is already an existing problem and says, *let's figure out a technological solution that will be able to address this other challenge that we have* without really thinking about what that other challenge is, what spurs the other challenge, why people have resorted to the use of pesticides, and whether lab-grown food actually presents a viable alternative.

I know there are a lot of concerns about lab-grown food and the amount of energy that it takes to be able to produce, the amount of plastics that get generated because everything has to occur in such a sterile environment. I would guess that may create environmental justice concerns for the communities that are surrounding those particular facilities. And, at the end of the day, you still have the same issues of consolidation because the people who will be producing that food are likely corporations and companies that have the capacity to invest in the technology. This means that from a food sovereignty perspective you are upending farmers' ability to grow food and continuing and perpetuating that cycle of consolidation and concentration in the hands of a few that I'm not sure are doing it for the good of the planet or for the good in any way. For many farmers and producers focused on food sovereignty, they are focused on practices that not only produce food in a way that doesn't use pesticides but also is good for the earth. So, I don't know. I think this issue presents a lot of unknowns—I don't know if I have a good answer. Maybe it would reduce pesticide use but I worry that it might increase some other environmental outcomes that are also equally, if not more, harmful.

MARGOT POLLANS:

Great. So let me ask a similar question about genetic engineering more generally. Meredith, you mentioned already that a lot of seed engineering is done . . . to make them pesticide resistant so they can be used alongside pesticide [. . . inaudible] but a theoretical [. . . inaudible] and could be used to generate potential environmental benefits or to think about thing like climate resiliency and such. That seems not to be a huge amount, and I'm curious if you can speak a bit to why not, and if there are potential regulatory interventions within the GE realm that would at the very least push GE toward more responsiveness to other kinds of annual problems.

MEREDITH STEVENSON:

Yeah, first I just want to note that there is very, very, very little regulation over the introduction of GE organisms. Extremely little. USDA has tons of exemptions for GE organisms to completely evade oversight and regulation and those exemptions are applied by the developers themselves. The GE developers. So, a GE developer could just decide that the product they are working on doesn't fit into any of these categories that would need oversight, and also just a few years ago USDA reduced the oversight over and reduced regulation over the GE organisms that actually don't fit into these exemptions and actually are regulated, so there's very little data these developers are needing to submit. We have three major concerns about this. The first is our response to the pesticide notes. I'm not sure why. It's definitely just not working. I don't think these things are designed for that. They are designed to increase pesticide output to make it easier for farmers, which it's not anymore. But I will get to that later. Just to have farmers planting with the same seeds and using the same applications to pesticides and not paying attention to conditions or anything like that.

They are blanketing the nation with pesticides. That's what these things are designed for. They are not designed for environmental benefits, at least not right now. They are just designed to make money and that's what is going on here—this corporate control over agriculture. They have to buy the same seed from the same dealer, and sometimes if a farmer doesn't buy his seeds and restricts, people get hooked out of necessity, and it's easier to do it that way. That's what happens. And since the advent of genetically

engineered crops, the output has increased by four hundred million pounds. So that's the reality. Some types of seeds are producing their own insecticides, so maybe the insecticides aren't being sprayed but whatever little amount of insecticide reduction that is, there's so much more of an increase in herbicide use. That's very little reduction for systems but, overall, it's increased by hundreds of millions of pounds. So, we have a major concern with that.

Second, we have a major concern about what Valerie was mentioning with the super weeds. Over 120 million acres in the United States right now are covered in these super weeds that resulted from the overuse of [inaudible] so the farmers are using dicamba to reduce these so I'm not sure what is next but it's a treadmill. You just keep going forever. More and more poisonous and more and more to go back.

And thirdly, we are worried about contamination. GE contamination. And this could happen in so many different ways. It could happen through flooding, seed mixing, pollen drifting, and that could have major effects on the United States. Some GE rice contaminated other rice and it was rejected among exports and that ended up costing farmers over \$1.2 million. So there are very real consequences from the lack of regulation of GE organisms. I would just say, we are encouraging every single GE organism to be regulated and for there to be a very significant oversight over this issue of contamination, and for there to be regulation that prevents, and really work on this issue of the increased pesticide use that comes with these GE crop systems.

MARGOT POLLANS:

Thank you. I know in my notes I had directed this question to Meredith, but would Valerie or Laurie like to weigh in?

VALERIE WATNICK:

In addition, with regard to seeds, even when farmers attempt not to use GE seeds and do seed regeneration and seed cleaning every year, they don't often succeed because seeds from the neighboring farms that use GE seeds (which can be pesticide ready) drift over and then the farms wind up using the GE seeds, often the Monsanto-produced seeds. Then they have to use the pesticides to produce their crops with the GE seeds, so they can't even avoid using

the GE seeds because there's so much interplay between the different farms and that's a real problem. Monsanto (now Bayer) then can go after farmers that use their seeds on their land without buying them—even when the use was unintentional.

LAURIE BEYRANEVAND:

Even in the production of GE seeds that would address planet issues or achieve greater resilience, you still have the issues of intellectual property. So, if farmers are still going to have to purchase those seeds and farmers are still going to be subject to all of their restrictions, unless you are able to upend that, even if the government was to invest in climate-smart seeds, you would still face a lot of these same challenges.

VALERIE WATNICK:

Another issue is who would produce and own the climate smart seeds? You would probably run into the same types of intellectual property problems.

MARGOT POLLANS:

Exactly.

A quick audience question about the relationship between GMOs and the national organics program: If consumers could not afford organics, would they be able to include GMO as a fixture, and why not build off the organic label?

MEREDITH STEVENSON:

I can answer that. There is a federal law for GMO labeling, and there is still litigation over it. So, back a few years ago, Congress passed a food disclosures act. That act could have delegated to USDA to pass the regulations carrying it out, and the regulation also had a lot of problems. They didn't cover all GMOs; they only covered GMOs that were detectable by any testing method.

It doesn't matter how old the testing method is. It had some issues so we are still litigating that. But you can't—a lot of products are labeled currently there. It is the non-GMO product which is the voluntary label so some of those are actually QR codes. The labels are actually on the package but currently foods that are highly

refined are not labeled. That is still in litigation. There are some issues but it exists. It's called bio-engineered.

VALERIE WATNICK:

It's interesting, Meredith, because you are saying that there's litigation over this labeling; that industry does not want the foods labeled. Consumers want labeling and industry doesn't want the labeling so there's always a tension and a regulatory battle to get things labeled.

MEREDITH STEVENSON:

Yeah, the whole GMO labeling movement really came from consumers. It started at the state level. It was amazing. This was back in the early 2000s. They ended up getting a law passed in Vermont and Connecticut and Maine. And that's when Congress started with this other labeling scheme that was a lot weaker; the USDA regulations were a lot weaker than the state laws that consumers wanted and pushed for. So, there's definitely a discrepancy there.

MARGOT POLLANS:

I was just trying to look for the symbol itself to put in the chat. It's interesting that it was a phrase "bioengineered foods" to begin with, which is not the phrase that the average consumer would associate with GMO products. And then the label itself is like a sunny picture of crops. So, there's a real intentional obfuscation even in the forced disclosure there. That's fascinating.

I want to shift gears a little bit and turn to Valerie. One of the themes in your work is about the failure of federal approaches to risk assessment. I was hoping, could you talk a little bit about what risk assessment is, how it's used in the regulatory process for pesticides in particular, and where you think it has gone wrong?

VALERIE WATNICK:

Risk assessment is a four-step process. The first thing the risk assessor does, usually in an agency, is identify a risk, like a chemical. The assessor is worried about a chemical, for example, a chemical like dicamba, and looks at studies on dose-response to consider how much of this causes a problem in step two. The third step is

exposure pathway assessment. How are people going to be exposed to this product or chemical? And the fourth step is risk characterization overall. From an outside perspective, it all sounds good and scientific. But there are a couple major problems with risk assessment.

Risk assessment is used for pesticides but also used for all the non-pesticide chemicals under the Toxic Substances Control Act. Currently, the EPA has a work plan list. It was about ninety chemicals; they have at least twenty high priority chemicals to begin to regulate. Risk assessments for those chemicals have been ongoing. I wish I was in a class and I could ask you, *how long do you think they have been ongoing?* The answer unfortunately is that they have been going on for ten to twenty years. So, these risk assessments take so long to develop. And essentially, they are—in the short term, at least, not that useful. In the mid-2000s, the National Academy of Sciences indicated, *we will re-envision how we will look at risk assessment and how we are going to use it.* And one of the things that they suggested—commenting on their 1983 red book—the main book on how to do risk assessment in the federal government—is you need to take a harder look at the beginning of the process—at options. What are the options to manage risk for people? How could we regulate, by having different options, and could a scientist somehow limit risk in the initial phase, rather than taking ten to twenty years to green light or red light a product or chemical? The idea would be—not do we approve the use or disapprove the use, but can we come up with options and do that in initial scoping or planning process when we are initially looking at whether there's a risk.

I was pleased to see that because the National Academy of Sciences issued these new suggestions and guidelines with the concern in mind that the risk assessment process is losing its relevance because it takes so long and is cumbersome. At the end of the day, the federal government has limited the commercial use of so few chemicals partly because it takes so long to get a risk assessment done. The other problem with risk assessment is the four steps along the way. When engaging in the four steps, the risk assessor has to make judgment calls. How much pesticide is someone going to be exposed to in the strawberry field? How many strawberries do they eat? How much pesticide was applied and how much wind was there on the day it was applied? The number of required assumptions make risk assessment too malleable. The end result often depends

too much on the risk assessor's predilections and political judgments. The NAS also suggested in the mid-2000s, we need to formalize the process of the risk assessors' judgment calls—so when the assessor makes the judgments, they are more formally made. NAS importantly said it would take years to try to implement at EPA because it's a major shift in how the agency uses risk assessment. I, however, like this new approach in thinking about a product or a chemical: can we continue to use this chemical more safely? What are the best ways to limit risk without a full risk assessment? Starting from the position, let's try to come up with better solutions and use initial planning and risk assessment to come up with those solutions. I think that's a really important change in framing. There are chemicals in the market that have been on the market for years I am thinking of chemicals that are not even pesticides but a chemical like formaldehyde. People accept that formaldehyde is toxic to humans but it is not fully regulated or banned. Some high priority chemicals are in the scoping stage or even the first or second stage of risk assessment for many years. During this period, they just don't get regulated and the process just isn't working as a system, as a way to regulate to protect human health.

So the first two problems with risk assessment are the length of time it takes and second, its malleability. The third problem with risk assessment is it still works one chemical at a time. The Food Quality Protection Act does call for some consideration of chemicals that have a common mechanism of toxicity, and for a consideration of cumulative risk, however, it does not really account for what is in your salad bowl. What is in your salad bowl is a mix of chemicals that you eat every day and you might react to it differently than I might react to it so there's always an interspecies factor that has to be considered. Risk assessment of pesticides and limit setting on residues does call for the application of an interspecies and intraspecies factor of ten for each factor to account for these differences between people and between the people and the animals on which tests have been conducted. However, risk assessment does not account for synergy between chemicals.

Finally, for children, the FQPA adds an additional uncertainty factor to account for sensitivities of children to pesticide residues—the subject of my current research. I'm studying how the Food Quality Protection Act of 1996 has actually been implemented to protect

children and whether regulators have applied the extra uncertainty factor to protect children.

MARGOT POLLANS:

Thank you. That was extremely helpful and I'm so glad we ended on the note of chemical-by-chemical approach. Because we just have a few minutes left, I wanted to end with a more general question. It always struck me that one of the greatest failures of our system was generally that it was designed to go chemical-by-chemical and say, *Is it safe? How much is safe? What are some safety features we can put into place?* And there is no bigger picture mechanism. We don't have the equivalent of the Clean Air Act and National Ambient Air Quality Standards for toxics. So just in our last minute, if each of you could design a toxic regulation of the pesticides from scratch, where would you start? What would be the framework?

VALERIE WATNICK:

The framework would be to start with precaution. In the first panel this morning, the panelists said we have a system designed to allow these poisons in our world. It's not a system that is protecting human health. The framework does not start from a precautionary stance. In Europe, regulation is from a more precautionary stance although Europe still allows glyphosate, the most widely used pesticide around the world and in the United States. I would say industry is way too involved in the regulation of pesticides in our country. I would say get them out of that process and have independent science and have standards for that independent science. I would also suggest that we obviate the balancing of costs and benefits of a pesticide. When EPA registers a pesticide, FIFRA allows balancing the costs and benefits of the pesticide. I would not keep that part of the framework. It's so hard to get regulatory change, but in a perfect world, I would want to see that aspect changed.

MEREDITH STEVENSON:

Right. [Lapse in the transcript.]

LAURIE BEYRANEVAND:

There are a hundred things I would say. One that is really important—and this came up this morning, I think in the first panel—one panelist mentioned how EPA sees itself as working on behalf of their registrants, and that’s a real conflict if EPA is registering pesticides and at the same time, is creating worker protection standards for farmworkers that are exposed to pesticides. That, to me, feels like a real conflict of interest and one that is avoidable by having the Occupational Safety and Health Administration, as the agency that is supposed to create workplace safety standards, be the agency that does that and doesn’t have that same conflict. So if I was going to change things, that would be one of the first things I would change.

VALERIE WATNICK:

I think it is important to note that one of the comments that was made in the last panel as well, that this subject—which is so amazing and important and touches on so many different areas of the environment and pollution and environmental justice—needs to be in environmental law classes. This is a major, major issue from an environmental justice point of view, from a climate change and pollution point of view, and from the point of view of protecting human health. I’ve been doing this work a long time and I obviously think it’s such an incredibly important issue and I would really encourage everyone to share more about the regulation of pesticides. I am grateful for this panel because in all my years doing this research, speaking, and writing, I’ve never been invited to a panel that was just on pesticides on food and pesticide regulation and I think it’s the greatest idea. So thank you.

MARGOT POLLANS:

Thank you all so much. This has been an incredibly informative and exciting conversation. And I hope we can get all three of those suggestions implemented in law sometime very soon.

VALERIE WATNICK:

Thank you.

LAURIE BEYRANEVAND:

Thank you.

APPENDIX A
TABLE OF ACRONYMS

AG	Attorney General
DEC	New York State Department of Environmental Conservation
ELJ	New York University Environmental Law Journal
EPA	U.S. Environmental Protection Agency
FDA	U.S. Food & Drug Administration
FDACS	Florida Department of Agriculture & Consumer Services
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FLSA	Fair Labor Standards Act
FQPA	Food Quality Protection Act
GE	Genetically engineered
GEC	Genetically engineered crops
GMO	Genetically Modified Organism
IPM	Integrated Pest Management
NAS	National Academy of Sciences
NHL	Non-Hodgkin's Lymphoma
NOP	National Organic Program
NOSB	National Organic Standards Board
OFPA	Organic Food Production Act
PACTPA	Protect America's Children from Toxic Pesticides Act
USDA	U.S. Department of Agriculture