

Climate on Your Plate

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Recorded on February 8, 2018



Announcer: This is Climate One, changing the conversation about energy, economy and the environment.

Our carbon footprint depends as much on the cars in our driveways as the food on our plates. So what's a climate-conscious eater to do?

Brian Kateman: It's really not a controversial idea at this point that eating less meat is healthier for us and better for the planet.

Announcer: But if reducing our appetites for meat is a good thing, wouldn't going vegan be even better?

Nicolette Hahn Niman: There is no evidence that the optimal food system from an ecological standpoint excludes animals entirely.

Announcer: And what about GMOs? Are they a safe and effective way to beef up our food supply, or a corporate profit-making scheme that weakens the health of our crops (and hamstring's America's farmers)?

John Purcell: It's about tools in the toolbox and GMOs is just one of those tools. And farmers should be given the choice to allow them to choose what tools they want to employ in their operations.

Announcer: Climate on your plate. Up next on Climate One.

Announcer: How should climate change affect what we put on our dinner plates? Welcome to Climate One - changing the conversation about America's energy, economy and environment. I'm Devon Strolovitch. Climate One conversations - with oil companies and environmentalists, Republicans and Democrats - are recorded before a live audience, and hosted by Greg Dalton.

On today's show, Greg and his guests discuss some of the options available to people who want to eat a climate-conscious diet. We begin with the divisive issue of genetically modified organisms. Supporters of GMOs say that altering the DNA of corn and other crops is just another tool in the farmers' toolbox - an innovation that will help feed a world whose food production has been disrupted by climate change. Opponents say that modified crops are dangerous to our health. They're resistant to pesticides such as Monsanto's Roundup, which has been linked to cancer. And that they're jeopardizing crops by creating a destructive cycle of Roundup resistance.

To talk about GMOs, Greg has rounded up three guests. John Purcell is vice president of Monsanto vegetables and head of their global research and development. Scott Kennedy is director of Food Evolution, a documentary on GMOs narrated by Neil deGrasse Tyson. And Austin Wilson is environmental health program manager with the shareholder advocacy group As You Sow, and author of a new report. "Roundup Revealed: Glyphosate in our Food System."

Here's our conversation rounding up the facts on GMOs.

Greg Dalton: John Purcell, let's begin with you. In the film Food Evolution, Neil deGrasse Tyson notes that Monsanto is one of the most hated companies in the world. Why do people have such strong feelings toward Monsanto?

John Purcell: I think maybe you need to ask people that. They're expressing those views. But I think for me, I've been in Monsanto for 20 years now and I went there I was a bug guy studying insects in the graduate school. And I went there and what really struck me about Monsanto was the vision that agriculture was gonna change. But when you are a visionary, when you are trying to bring new technologies to the market, it's not always smooth. And I think for me though that vision that agriculture was gonna change and biology would be a huge driver of that, that's what got me and a lot of the biologists that came to Monsanto excited because we wanted to find new ways to help farmers and we wanted to do it in a sustainable fashion, and we want to make sure all the tools of modern biology are being used. And that's still what attracts me today almost three decades later about Monsanto. It's providing those tools to growers.

Greg Dalton: New innovation. Austin Wilson, you authored a report on glyphosate which is the herbicide known as Roundup and a lot of that is applied to soybean, corn in the American Midwest. Your take on this in terms of GMOs and the pesticides used, part of the solution to climate change or part of the problem?

Austin Wilson: So half of American farmland is planted with just three crops, genetically engineered soybeans, corn and cotton. And that's reflective of the overall system where 99% of GMOs that are grown either produce insecticide, they're embedded with Bt, bacterial insecticide, or they are tolerant to toxic herbicides like Roundup, dicamba and 2,4-D. 80% of global GMOs are applied with Roundup. And Roundup two years ago was classified by the World Health Organization's cancer authority, the world's leading cancer authority, as a probable carcinogen. To the state of California, it is now labeled as a known carcinogen. There is extensive research on low-dose toxic effects even at the doses that are present in the food system. So these technologies have been used primarily as a pesticide delivery system. Monsanto and the other - there are six seeds and pesticide companies that control 90% of the world seed market and 80% of its pesticide market. And that is how this technology has been deployed. Right now over 90% of Monsanto's revenue is through Roundup and it's through genetically engineered crops and traits that are meant to be used with pesticides. Only 6% is the seed of the fruit and vegetable division. So that's the big challenge that this industry is facing. The food industry right now is having a major challenge of grappling the sustainability, their customers want sustainable food, their investors want them to be ready for climate change and have resilient long-term sustainable systems. GMOs have been a barrier to that sustainability because they've been driving pesticide use.

Greg Dalton: Scott Kennedy, your film looks at this from both sides though; it's supported by food industry, food scientists. There is a piece in there that claims that the amount of fertilizer goes up but the toxicity is actually down. Tell us that piece.

Scott Kennedy: That's a good example. I'd love to take a step back and just say very clearly I don't work for Monsanto. Just what kind of position this is as being one side against another side and the

film was produced independently. I had the final cut on the film and that's a very important part of this. And I want to -- like things get conflated in this conversation so much, right, and we say that GMOs are this or GMOs are that. And I think that the conversation around food has really gotten out of balance. And a way that we can get some of that bounce back is saying yes and. And really looking at pieces individually, right. That's one of the reasons we wanted to make the film. So what is a GMO, right? GMO is a process not a product. You guys are talking about a very specific product. You want to continue talking about that, we can talk about that, but let's not remove this piece of technology that can be used to say, save the bananas in Africa and has nothing to do with Monsanto. So just separate those two things and we can continue that as we go along today. So glyphosate, Roundup. Did pounds of it increase as Roundup products came into market? Yes. So Chuck Benbrook had a study, that's on the front page. The thing that was left out and that became memes and was communicated all over the world, the thing that was left out is two pages later he also said that because of glyphosate's very low toxicity and low impact on the environment he doesn't see any increase in environmental impact. So we leave that out of the conversation, bring that nuance into the conversation.

Greg Dalton: Gabe Brown is a farmer in North Dakota who says his crops and the health of his soil are doing better without glyphosate. Let's listen.

[Start Clip]

Gabe Brown: My name is Gabe Brown and I farm and ranch near Bismarck, North Dakota. We grow a wide variety of cash crops everything from corn, barley, peas, wheat, oats. The ranch has been in my wife's family since 1956 and my wife and I bought it from them in 1991.

When I originally started farming, I took over a farm that was very conventional; tillage with the use of fertilizers and herbicides and pesticides and fungicides. And as my knowledge progressed and I learned more about how soil functions, I learned that those things are detrimental to a healthy functioning ecosystem. So we quit using glyphosate five or six years ago now and we've noticed an improvement in the health of the plants because of that.

I can understand why producers use it because it's very easy, but the long-term health of their resource is being negatively affected by the use of glyphosate. Monsanto, they are like any other large agribusiness company. They're profit-driven and in my mind they did not put the resource or human health first.

[End Clip]

Greg Dalton: That was North Dakota farmer Gabe Brown. So John Purcell, your response. Some farmers like it, obviously a lot of farmers are using it. There's a farmer who said I don't need to use it anymore and the plants are healthier without it.

John Purcell: Yeah, this is about what are the tools you want to use. My dad was a carpenter. He said don't leave for a job unless you got right tools in the toolbox. GMOs are one tool. Pesticides are one tool. Think about biologicals, think about some of these. These are all tools in the toolbox. Growers are gonna choose different production methods. As a seed company, I want to provide seed to growers who want to grow GMOs, want to grow conventionally and want to grow organic. I'm in the vegetable business. You cannot be in the vegetable business unless you have products that actually will support almost \$100 billion industry, organic market. We're about providing solutions for growers, whatever choice they make. And that's what it's about. It's about tools in the toolbox and GMOs is just one of those tools, pesticides is just one of those tools. And farmers should be given the choice to allow them to choose what tools they want to employ in their operations.

Greg Dalton: Austin Wilson, your report talks about pre-harvest spraying of glyphosate. Tell us about that, what the concern is.

Austin Wilson: Right now for the company's business strategy and the other pesticide companies, there really has only been one tool and that tool has been herbicide use. One of the new ways in which Monsanto is encouraging farmers to use Roundup is to spray it on crops just before harvest so that when if the crop is drying somewhat unevenly that it dries evenly and harvest can begin earlier. And this is something that is demonstrably raising the glyphosate residues in food to very high levels. It's something that has questionable benefits and with such a high potential risk. It's something that really is more deserving of scrutiny and has been flying under the radar until very recently. So that has been something that companies have been encouraging farmers to do on wheat, barley, edible beans and other crops. But there's two really quick things that I need to point out that have come up. One is that the World Health Organization doesn't reflect the conclusion that the EPA has come to about glyphosate. So let's talk about the EPA's pesticide office very quickly. The EPA's pesticide office uses nonpublic industry studies and they use outdated rules that discount the vast majority of peer-reviewed science. Because of that, EPA is not looking at the large quantity of academic science that the World Health Organization's cancer authority is looking at when it reviews of glyphosate. EPA's recent scientific advisory panel just concluded that EPA did not follow its own guidelines when it was assessing glyphosate's carcinogenicity last fall. And EPA did consider Roundup and glyphosate to be carcinogenic back in the early 90s but changed its mind after intervention by the industry. So there is a long and deep history here that is really worth looking into.

Greg Dalton: Are you against GMOs anytime, anywhere?

Austin Wilson: No. Technology is not inherently good or bad. It's how we deploy it in the real world. And right now all these tools they sound like great beneficial tools and I'm glad that there are companies out there developing them. Right now, the tool that has been dramatically overused is these pesticide dependent technologies. That's what most of the company's revenue comes from. And now we've planted so many Roundup ready crops across the country and across the world that there are super weeds resistant to glyphosate on half of U.S. farms. What the company's strategy now has been to develop new crops that are resistant to both glyphosate and dicamba. Dow Chemical is already selling crops that are resistant to glyphosate and 2,4-D. These are pesticides that are known to be more toxic and volatile. 2,4-D is a known carcinogen that was used in Agent Orange and we're gonna be using more pesticides, 10 times more 2,4-D and dicamba than we are today by the company's own plans. That's not sustainable agriculture. Sustainable agriculture is about agroecology, integrated pest management and using pesticides as little as possible.

Greg Dalton: Scott Kennedy, you think organics are oversold, why?

Scott Kennedy: In this conversation it feels like sometimes people are talking about this that, you know, organic is a miracle and it's gonna save my children, save the planet, and GMOs are poison. And it's sort of like, yeah I'm a hypocrite, but for the left. And it's a shame because we want so many of the same things, right? So this is not an either or. GMOs were considered to be part of organic certification in the beginning and some people fought against that. We can grow GMO seeds organically. So back to your question about organics. So organic farming, I don't have a problem with organic farming. It can be delicious. It's taught us a lot about the inputs that we put into our system. But I do have a problem with somebody telling me that I'm not a good father or I'm putting my kids at risk if I'm not buying organic food. There's no science to support that. And my question to the audience is, which is more important for our kids, that they eat organic vegetables or they eat fruits and vegetables? And we know the answer is to eat fruits and vegetables and how hard that is.

Greg Dalton: John Purcell, would Monsanto support more R&D, more funding for organics?

John Purcell: We support organic growth. I've got a lot of organic customers. I think the problem is we become so binary. This is right, this is wrong, this is good or bad. My brother's ranch is small local, people come and it's wonderful. It's small, it's local, it's family-owned but he's a pork guy, small local pork. He's not putting pork chops in grocery stores around the country. You need both. We need all kinds of agriculture. We support organic growers. Some of our varieties are organic. It works great because we have more resistance built into the varieties. They don't have some of the tools, they use pesticides, organic pesticides but they don't have all the tools, conventional growers. So having that resistance in the seed is actually a good thing for organic growers. So absolutely we try to support the organic market.

Announcer: You're listening to a conversation about GMOs and climate-conscious eating. This is Climate One. Coming up, Greg Dalton and his guests will debate the climate impacts of going vegan:

Nicolette Hahn Niman: When you get rid of animals, you're actually throwing the baby out with the bathwater because they're an essential part of sustainable food production.

Announcer: That's coming up, when Climate One continues.

Announcer: We continue now with Climate One, and this question: are cows a climate villain, or solution? The documentary "Cowspiracy" holds that animal agriculture is the number one source of climate killing pollution, and that the notion of a sustainable meat production is a sham. Others, however, claim that responsibly-raised livestock play an indispensable role in healthy ecosystems.

Joining Greg Dalton to debate good and bad beef are Kip Andersen, co-director of "Cowspiracy" and founder of AUM films and media, a nonprofit focused on promoting compassion and harmony for all life. Nicolette Hahn Niman, a vegetarian who raises cattle north of San Francisco. She's a critic of industrial meat production, and the author of two books: Righteous Porkchop: Finding a Life and Good Food Beyond Factory Farms and Defending Beef: The Case for Sustainable Meat Production. And Jonathan Kaplan, Director of the Food and Agricultural Program at the National Resources Defense Council. He leads initiatives to reduce antibiotic use in the livestock industry and eliminate toxic chemicals from the food supply.

Here's Greg and our conversation about cows and climate change.

Greg Dalton: Nicolette Hahn Niman, let's begin in 2006, the Food and Agriculture Organization issues a seminal report called Livestock's Long Shadow. Tell us about that report and what it said.

Nicolette Hahn Niman: So up until that point there wasn't a lot of talk about livestock as a major contributor to global warming. And in 2006, the Food and Agriculture Organization published the report, Livestock's Long Shadow which basically said it was all livestock together contributed about 18% of total global warming gases globally. Now the figure looked at a lot of issues in defending beef I argued that a lot of the figures should not have been included in that 18% because, for example, about 38% of that total 18% was actually from land-use changes. So it wasn't actually directly related to livestock raising it was primarily deforestation in Brazil, Indonesia and Sudan. And there were other issues, but it was a pivotal moment in this discussion because the media really got a hold of that idea. And in their headline, in their press release, they said that livestock actually caused more global warming emissions than auto, than transportation. And they later acknowledged that that was actually incorrect.

Greg Dalton: Jonathan Kaplan, It's big, whatever the number is, it's big and animal agriculture has a big impact on the planet.

Jonathan Kaplan: I think that's the bottom line for your listeners. Livestock industry is big when it comes to carbon, when it comes to greenhouse gas emissions. I do wonder about the study that says it's 51%. I don't, you know, I'm not convinced it's the biggest. When you look at the United Nations Food and Agriculture Organization, EPA, the intergovernmental panel on climate change - all those agencies, put the number more like, you know, 14%, 15%. But that's still a really big number. So, you know, I don't wanna like that's that under the rug, and I think most Americans probably don't realize that the numbers as big as it is.

Greg Dalton: We're not gonna debate percentages all night I guarantee you. But I do want to get a baseline here, let's, Adam, roll clip one we're gonna show you some of Cowspiracy and then have Kip and Jonathan respond.

[Video Playback]

I thought I was doing everything I could to help the planet. But then with one friend's post, everything changed. The post send me to report online published by the United Nations, stating that raising livestock produces more greenhouse gases than the emissions of the entire transportation sector. This means that the meat and dairy industry produces more greenhouse gases than the exhaust of all cars, trucks, trains, boats, planes combined. Cows and other farm animals produce a substantial amount of methane from their digestive process. Methane gas from livestock is 86 times more destructive than carbon dioxide from vehicles. Here I'd been riding my bike everywhere to help reduce emissions. But it turns out there's more to climate change than just fossil fuels. I started doing more research. The UN along with other agencies reported that not only did livestock play a major role in global warming, it is also the leading cause of resource consumption and environmental degradation, destroying the planet today.

Greg Dalton: Kip Andersen, your response?

Kip Andersen: So, this one industry is a one-stop shop for if not, the number one or two leading cause of deforestation, water consumption, water depletion, ocean dead zones. We've already admitted and it's somewhere up there of greenhouse gases, wildlife killing, the list goes on and on. A one-stop shop. And you go on these environmental groups, websites, and you see this tucked away deep, deep in these organizations websites. You can't even see it, it needs to be on the forefront attention newsflash, we just found out this one industry is destroying our entire planet on one single issue. And the definition of a conspiracy is a group of people gathering together of doing something harmful. And when this industry knows and I know NRDC knows, I know they've seen our film and I know Greenpeace knows and the Rainforest Action Network, they know this information and they are not telling it to the public.

Greg Dalton: Let's go to a second clip, there's another part of this film, Cowspiracy, which is about how the environmental groups responded to this.

[Video Playback]

How was it possible I wasn't aware of this? I thought this information would be plastered everywhere in the environmental community. I went to the nation's largest environmental organizations websites 350.org, Greenpeace, Sierra Club, Climate Reality, Rainforest Action Network, Amazon Watch and was shocked to see they had virtually nothing on animal agriculture. What was going on, why wouldn't they have this information on their main page? It seem the main focus for many of these groups was natural gas and oil production with fracking being the latest hot issue due to water usage and contamination. Hydraulic fracturing for natural gas use an incredible amount of water, a staggering 100 billion gallons of water is used every year in the United States.

But when I compare this with animal agriculture, raising livestock just in the US consumes 34 trillion gallons of water and it turns out the methane emissions from both industries are nearly equal.

Greg Dalton: Jonathan Kaplan, is there an environmental, he didn't mention NRDC, which is where you work.

Jonathan Kaplan: Yeah, right. So, there's no conspiracy, let me just say that now, you know. The film alleges, which I think is absurd that, you know, somehow NRDC and other green groups are taking money, perhaps from the livestock industry to hide, to cover up the impact of this industry, which, you know, is pretty upsetting as an allegation and completely without merit. And in fact, NRDC and probably lots of the other groups discuss the film have done a huge amount of work over the years, challenging the livestock industry, challenging their pollution, their overuse of antibiotics. The fact that, you know, confined feedlots are basically huge cities worth of manure that are completely untreated and are despoiling rivers and creeks, and really destroying communities where they're located. So I wanted just get that out of the way, you know, as you said earlier, we do have a lot to agree on here. We do need to reduce our meat consumption and we need to force this industry to clean up its act. I don't think it's good enough to say, you know, let's all just stop eating meat and hope everybody agrees and that's gonna be our strategy. That's not gonna be a winning strategy. That's gonna be part of the solution, but we also have to be there holding this industry accountable, and encouraging entrepreneurs to have a more sustainable way to raise animals. That is a really important part of the story and we have to celebrate them.

Greg Dalton: I received an email from Anna Lappe, who is author of *Diet for a Hot Planet: The Climate Crisis at the End of Your Fork*. And she wrote that environmentalists were silent for quite a while on food. They had a blind spot not because of a conspiracy, but she admits they had a blind spot. She says the film is ridiculous. The conspiracy claim is ridiculous and it's dangerously misleading but enviros were late to the food game what's behind the curve on this?

Nicolette Hahn Niman: Well, there is an aspect of truth to that, but in 2000 I was charged by Robert F. Kennedy Junior, I was a senior attorney for the environmental group Waterkeeper Alliance specifically to work on environmental problems related to livestock industry, that's back in 2000. And we worked with all of the major environmental groups in the United States and I led that campaign for two years before leaving that job. But that was the beginning of a lot of environmental groups working - focusing on the environment impact from livestock production. But I think the whole problem with the premise of the film and of, sort of, a lot of the discussion that's been had already is that livestock is inherently problematic, when in fact that's absolutely not true at all. Because it's really about how it's done. And if it's done poorly, it can have a negative environmental impact; if it's done well it's actually an essential part of sustainable food production. And having now worked on in this issue for the last 15 years I would say I think that there are three keys to sustainable food production, and those are water, soil and microbiology. And in each of those three categories, livestock play an essential role. They play an essential role in building soil fertility, and in the soil health, and especially the microbiology of the soil and in the whole hydrological system of our world, and of our world food system. And there's a lot that's been written about this. I think this is actually the core of where the sustainable food movement needs to go, and this is totally ignored in the suggestion that we need to be moving towards veganism. So when you get rid of animals, you're actually throwing the baby out with the bathwater because they're an essential part of sustainable food production.

Greg Dalton: We're gonna roll our third clip from *Cowspiracy*. And this is Michael Pollan talking about the business model of environmental groups.

[Video Playback]

Michael Pollan: I think they think, I think they focus group it and that's a political loser in terms of -- yeah, because they're membership organizations, you know, a lot of them. They're looking to maximize the number of people making contributions and if they get identified as being anti-meat or challenging people on their everyday habits that's something so dear to people that it will hurt with their fundraising.

Greg Dalton: Jonathan Kaplan, strong words from a very respected food guru saying that groups like NRDC don't want to be food nags, is he right?

Jonathan Kaplan: First of all I am very unhappy with the suggestion that word sort of profit, you know, motivated. People at NRDC could be making a lot more money working for some private company somewhere. So we're not doing this to raise money. We are a membership organization and we are a policy change organization to change policy in this country, you need members, you need to have a large group of people behind you, and we do. We have 1.3 million members and online advocates behind our work, and that allows us to be persuasive in the halls of Congress or with regulators and so on. So yes, we do have to make sure that our messages are inclusive and we don't think it's necessarily a good strategy to be out there with a message telling people that they are the problem. Now, does that mean we should be silent about it? No. We need to give people the facts, as Kip said, we need to let people understand that their food choices matter. They matter a lot. And we need to encourage people to take steps to, you know, move down the spectrum toward a more sustainable diet. But we don't think it's necessarily the best strategy to come out of the gate and tell everybody that they have to go to zero animal products consumption today.

Nicolette Hahn Niman: And it's really important to note that Michael Pollan is in fact an omnivore and has repeatedly written and spoken about the importance of livestock in the food system in getting towards a more sustainable food system. So when we're talking about Michael Pollan, it's really important to note he's not a vegan and he doesn't believe in veganism as the solution for food system problems.

Greg Dalton: So how about it, Kip Andersen. I get the sense you're coming up from a humane perspective, that killing animals is wrong, that there's a moral issue underneath this, I get the sense was it really?

Kip Andersen: Well, what keeps getting brought up and just reminds you over and over and over, and we're doing a new film on health, is the similarities between the animal culture in the sea and raising animals for food in the tobacco industry. The exact same thing is coming out right now that happened in the tobacco industry 20 years ago. It was covered up for so long and then all of a sudden the wave came of truth and so, you know, about the antibiotics it's true. It's one of the biggest dangers of facing the entire planet, one outbreak could kill millions and millions. But to say, again, not to tell people not to smoke or not to eat meat. We're just asking them, it's like asking Marlboro to not put chemicals in their cigarettes. Why not just say, hey let's stop smoking cigarettes - let's skip, we're not babies we don't need to do baby steps, we're big adults.

[Applause]

Nicolette Hahn Niman: I think there's a big problem with the suggestion that, repeatedly, that this is what's motivating environmental advocacy the fact that it's too hard to tell people not to do this. Because as someone who's been working on environmental issues for a long time and who majored in biology and worked as an environmental lawyer, I can tell you that there is no evidence at all that the optimal food system from an ecological standpoint excludes animals entirely. And in fact there's

a great deal of evidence to the contrary, and I think the one piece of, sort of, written literature I really want people to look at is that a new study that was just published by Dr. Richard Teague and Dr. Rattan Lal who is one of the leading soil scientists in the world which is entitled The Role of Ruminants in Reducing Agriculture's Carbon Footprint in North America. This is a brand-new peer-reviewed study in the Journal of Soil and Water Conservation, and they conclude that actually having more ruminants on the landscape in the United States would be a step forward from a climate change perspective. So this is not at all - there is no factual or scientific basis for the claim that the optimal system excludes animals. It's just not true.

Greg Dalton: Jonathan Kaplan, can cows be part of the carbon solution?

Jonathan Kaplan: Yes, but we've got to have fewer cows. And I think there's a lot of evidence that shows when you have crop-livestock integrated farms you can close the loop on nitrogen. The farmer doesn't have to buy synthetic fertilizer to put on the crops, that he can grow or she can grow the feed for the animals. It's a much more sustainable system than the one we've got now.

Greg Dalton: Kip Andersen, a lot of people switch from dairy to other sources of milk, almond milk. Almonds use a tremendous amount of water. One thing I've learned in environmental inquiry the last 10 years is sometimes the solution is worse than the first thing. So how do you feel about people saying okay no dairy, but then we're drinking almond milk and growing almonds in a drought in California?

Kip Andersen: Well, if you watched the film, to make 1 gallon of cow's milk it takes upwards of 1000 gallons of water. There's absolutely no comparison when you compare that to soy milk, almond milk definitely takes a lot, you know, we don't recommend to anyone drinking almond milk every day.

You can drink soy, you can drink cashew, you can drink coconut milk, and they are incredibly more sustainable not only more sustainable but the ethical choice as well. No splitting up of, you know, the mother-child relationship, of the veal industry of, you know, eventually, when the cow after it finishes producing milk and loss around five of her calves, then she's killed for hamburgers. It's all, you know, you remove all that and goes directly to the source where most of these big animals get their protein is directly from plants.

Nicolette Hahn Niman: So I think you can see that a lot of this is motivated by a desire not to kill animals, and I think that's fine if a person wants to make that dietary choice.

Kip Andersen: And the planet.

Nicolette Hahn Niman: But it's really important to understand when ruminants are consuming water and you see those water footprint numbers, 98% of the water that they're consuming that's calculated in those water footprint numbers, it's green water. In other words, it's the water from rainfall in the forages that they're consuming. So those water footprint numbers used in the film and that are commonly bandied about are totally meaningless when you're talking about truly sustainable food process.

Kip Andersen: That's absolutely not true.

Nicolette Hahn Niman: What matters is blue water, which is the irrigation water, which by the way is a lot higher in almond milk production than it is in dairy production.

Greg Dalton: We're gonna go to our lightning round which we ask each of the guests today to answer a brief yes or no question. Starting with Jonathan Kaplan, the issue environmentalists really don't want to touch with a ten-foot pole is human population, yes or no?

Jonathan Kaplan: Wow, ambush.

[Laughter]

I think that question is above my pay grade.

Greg Dalton: Kip Andersen, most people in developing countries would continue to eat animal protein even if they were aware of negative impacts on the earth's climate, yes or no?

Kip Andersen: I totally agree. Yes, it's extremely addictive.

Greg Dalton: Nicolette Hahn Niman, eating a hamburger which in America or just about everywhere else is probably made with industrial meat, is one of the most damaging things a person can do to the earth's climate, yes or no?

Nicolette Hahn Niman: Absolutely not true.

Greg Dalton: Jonathan Kaplan. NRDC accepts donations from companies in the agriculture and food industries, yes or no?

Jonathan Kaplan: No.

Greg Dalton: Kip Andersen, in making Cowspiracy you modeled facts to your vegan thesis rather than going with the data and story led you, yes or no?

Kip Andersen: Absolutely not.

Greg Dalton: Nicolette Hahn Niman, the grazing practices you advocate for keeping water and carbon in the soil are too complicated for most ranchers?

Nicolette Hahn Niman: Definitely not true. I mean you just have to look at somebody like Gabe Brown and he's not a soil scientist and he's showing the world how this can be done on basically any farm or ranch.

Greg Dalton: Jonathan Kaplan, NRDC contributes to deforestation by mailing paper solicitations and other materials to 2.4 million members and activists, yes or no?

Jonathan Kaplan: What time does the show end?

[Laughter]

Again, yes there's an impact to that but we are grassroots membership based organization. And that still is a really important way to build our membership and build our power. So, we also fly our staff to meetings around the country - that has a huge carbon impact. We run our computers and so on. So we are, we do the best we can, but there are environmental cause too.

Greg Dalton: Kip Andersen, managed carefully, livestock can be part of the balanced ecosystem that serves humans and nature?

Kip Andersen: A hundred years ago maybe now 7 billion people absolutely not.

Greg Dalton: Jonathan Kaplan, Cowspiracy exaggerates the carbon pollution coming from animal agriculture, yes or no?

Jonathan Kaplan: I think so.

Greg Dalton: Last one, Nicolette Hahn Niman, some environmentalists are preachy and righteous?

Nicolette Hahn Niman: Yes.

Greg Dalton: Anyone sitting here on the stage today that fits that description?

Jonathan Kaplan: Be careful.

[Laughter]

Nicolette Hahn Niman: There are people who think that they're environmentalist that are preachy and self-righteous.

Greg Dalton: Alright. That ends our lighting round. How do they do? I think they did pretty well. Let's give them a round for it.

[Applause]

Announcer: We're talking about meat, dairy, and climate-conscious eating at Climate One. Coming up, we'll hear from someone trying to build bridges between meat-lovers and meat-avoiders:

Brian Kateman: Regardless of you're a vegan or a vegetarian or simply cutting back on the amount of animal products that you consume. You're part of this larger movement of people who want to mitigate climate change and want to align their personal dietary actions with that value.

Announcer: That's up next, when Climate One continues.

Announcer: You're listening to Climate One. Greg Dalton is talking about cows and climate-conscious eating with Kip Andersen, founder of AUM films and co-director of the documentary "Cowspiracy". Nicolette Hahn Niman, a rancher and author of "Defending Beef: The Case for Sustainable Meat Production." And Jonathan Kaplan, Director of the Food and Agricultural Program at the National Resources Defense Council.

Here's Greg.

Greg Dalton: Let's go to audience questions, welcome to Climate One.

Female Participant: Hello. My name is Leila Salazar-Lopez. I'm the executive director of Amazon Watch. And some of you might have seen me in the film Cowspiracy. So I was actually in the film, I didn't know it was a film about animal agriculture. I thought it was a film about sustainability when I was interviewed. So I was pretty shocked and disappointed, actually, Kip, when I saw the film.

Not because of the issue of we need to get animal ag, you know, in the forefront of the environmental and climate debate. I agree with you, it's a major, major problem that we all need to be addressing and working together on, not spreading and dividing which is I think actually what you've done.

Greg Dalton: Alright. Thank you. Kip Andersen, your film divided and made environmentalists mad at each other, mad at you.

Kip Andersen: So for example what we did is we interviewed these organizations. We said what's the leading cause of environmental destruction for this specifically Rainforest Action Network, Amazon Watch what is the leading cause of deforestation. By far, by far, nothing even comes close,

is raising animals for food. And again if you watch the interview for a longer period of time and we actually left a lot of it in there. It took so long for her to finally admit it, and once she finally admit it, it's one of the favorite parts because she starts telling the truth and that's where the story changes to actually truth being told and people who are vegan, the people of all walks of life. She's one of the favorite characters because she's the moment where the film takes someone actually telling the truth. So I'm not sure if she realizes that, but she's a huge hero in a lot of people's eyes, and she probably doesn't realize it.

Greg Dalton: One of the elements of that what you called moment of truth is the people fear for their lives. The people who fight ranchers die, get killed and that was part of the fear. Journalists have to be wary of lawsuits for the same reason. Let's go to our next question, welcome to Climate One.

Male Participant: This question is for Niman. What would be your response to the research that has recently come out from the University of Illinois and climate healers had said that if we removed cattle from land that was formerly forest, so just grass-fed animals a lot of this native forest comeback that we be able sequester more carbon than we've emitted since the industrial era. We'd be able to sequester 265 gigatons of carbon from the atmosphere, which is more than 240 gigatons we've emitted.

Nicolette Hahn Niman: Well if you're taking land out of food production and you're returning it to forest, yes, that's definitely gonna be beneficial regardless what the land is being used for.

But the paper I was just talking about a few minutes ago makes it very clear that if you're talking about crop production versus livestock production. The ruminants if they're well-managed are gonna be actually better for the climate. And so that study is not that helpful in this discussion. I don't think.

Greg Dalton: Next question.

Female Participant: So it doesn't sound to me like what you believe is that far from what the people think you shouldn't eat animals at all believe. Your main thing seems to be about soil but that doesn't necessarily mean that we need to continue animal agriculture. So couldn't there be some common ground here?

Greg Dalton: Thank you. You do seem to agree on more than you disagree. Not sure you could tell it.

Nicolette Hahn Niman: I mean I've spent the last 15 years of my life. A lot of my work has been opposing factory farming. I was the person who created the anti-factory farming campaign for Waterkeeper Alliance. And I've written as you said a book entirely criticizing the industrialized way of raising livestock. So yes, there is certainly a common ground there. But the role of animals in the food system I think is, you know, is sort of -- the film suggests that for moral reasons it's wrong to raise animals and I think that's obviously a point I disagree with.

Greg Dalton We're gonna wrap it up here by asking each of you quickly what's one food to avoid if you're a climatarian, you wanna eat a climate friendly diet, and one food that you should go for. Jonathan Kaplan, the climate friendly food and a climate unfriendly food.

Jonathan Kaplan: Avoid industrial sourced beef and eat more... popsicles.

[Laughter]

Greg Dalton: Nicolette Hahn Niman.

Nicolette Hahn Niman: I would avoid potato chips. They've been shown to have one of the highest carbon footprints of any food. And I would seek out well raised, grass-fed beef from a local farm or ranch of someone you know.

Greg Dalton: Kip Andersen.

Kip Andersen: Dairy, more than anything. Dairy is probably the most unsustainable and then, to avoid eating, the plethora of vegetables and take you pick one, your favorite.

[Applause]

Announcer: This is Climate One. Even if you're committed to sustainable eating, cutting out meat and dairy can be hard. But Brian Kateman may be able to help. He's president and co-founder of The Reducetarian Foundation, which advocates reducing consumption of animal products as both an expression of values and as a fun way to mix things up in your diet. Climate One's Kelli Pennington spoke to Brian Kateman about what he calls the Reducetarian Solution.

Interviewer: Brian you coined the term reducetarian. How did you come up with that and what exactly does it mean?

Brian Kateman: Well, reducetarian is anyone who's interested in cutting back on the amount of animal products that they consume. And for me this started with a personal story. I grew up in Staten Island, New York, which is not known to be the most progressive of places in terms of New York City. But the one thing I love about growing up in Staten Island was there was a lot of nature. As a kid I went to natural parks and other trails where I fell in love with the natural world and the animals living within them. And in college I was sort of that guy in campus, I was an environmentalist. I would tell people that they should take shorter showers and that they should recycle and they should use refillable cups of water instead of bottled water. But it wasn't until much later in college that I made the connection between factory farming and many of the issues that I cared about. I read a book, called "The Ethics of What We Eat" by Peter Singer. A friend of mine actually gave me the book while I was on a plane to present some research on climate change eating a hamburger. I think he gave it to me and sort of jest. But essentially, that book explored how it is that factory farming not only impacts our health and animals, but the natural world in terms of accelerating climate change and biodiversity loss. And so my mind was sort of blown and, you know, I wanted to live a life that was in line with my values. And so I decided to be a vegetarian and that went really well. I was healthy, I was happy, I felt good. The problem was I wasn't always perfect about it. I remember one evening in particular on Thanksgiving where I grabbed a piece of turkey and my sister kind of called me out on it. She said, "I thought you're a vegetarian Brian" and I said even in that moment, you know, it wasn't about being perfect it wasn't about being pure it was about trying to eat as many meals as possible that were good for our health and the planet. And so I remember another moment, you know, as a Jewish vegetarian I remember having a piece of bacon and my friends kind of making fun of me. And so I said you know what maybe I'm not a vegetarian or a vegan. I mean maybe there's another word to actually describe who I am. And so I looked up words like semi-vegetarian and mostly vegetarian and flexitarian and all these words describe people who primarily eat plant-based meals, but occasionally include animal products in their diet and that certainly described who I was. But they still sort of seemed behaviorally inconsistent and didn't have the same moral worth as a vegan or vegetarian. And if you think about it, there are a lot of people in the world today who might not be initially interested in cutting out most of their animal products in their meals. They might be open to simply cutting back on the amount of red meat, poultry, seafood, eggs and dairy that they consume. So it seemed to me like we needed a word and a

community of people to encourage others to essentially do that, to cut back on the amount of animal products that they consume and not necessarily worry about being perfect or pure. If you think about it, most people eat 275 pounds of meat a year, at least in the United States, which is an astounding number. And so if we could encourage a large majority of the American population to cut back 10% or 20% that would make a much bigger difference than simply encouraging a small minority of people to go entirely vegan or vegetarian. And it is true, vegans and vegetarians are reducetarians in the sense that they have reduced their meat consumption. It's just that they've done it so effectively that they eat none at all. In that sense we're on the same team, and that's the other elements I love about the reducetarian movement is that regardless of you're a vegan or a vegetarian or simply cutting back on the amount of animal products that you consume. You're part of this larger movement of people who want to mitigate climate change and want to align their personal dietary actions with that value. And so simply cutting back on the amount of animal products that you consume is a really fantastic way to slash carbon emissions and to help secure a more sustainable planet.

Interviewer: Tell me more about being a reducetarian and how it helps fight climate change.

Brian Kateman: Well, factory farming is an incredibly inefficient system from the very beginning. I mean we have to clear lands in order to grow feed that we then will feed to the animals, 80% of deforestation is in some way connected to animal agriculture. We know that 18% of greenhouse gas emissions come from factory farming. We know that it requires 10 times the amount of water to produce 1 pound of meat protein as compared to a grain protein. For all those reasons simply cutting back on the amount of animal products you consume is a great way to make a climate change. For example, a vegetarian has half the carbon footprint as a meat lover and for vegan it's even lower. And so for all those reasons simply eating less meat is a great way to help mitigate climate change.

Interviewer: How would you recommend someone start this process? And how do you make this change accessible to a typical American meat-lover?

Brian Kateman: There are many different ways to cut back on the amount of animal products that you consume. If you're particularly motivated and excited you certainly could try out veganism or vegetarianism and see how that goes. But you also could try some smaller incremental changes. Probably my favorite strategy is meatless Monday where you simply cut out meat on Monday and the rest of the week it's your choice. You can also try Mark Bittman's strategy called "Vegan Before 6:00." Breakfast and lunch you have vegan meals and then for dinner it's your choice. You could try Graham Hill's approach he recommends that you try a weekday vegetarianism. Monday through Friday, you don't eat anything with a face and then on Saturday and Sunday it's your choice. But you can also make it fun, make it interesting. For example, maybe you go out to eat quite a lot and you might say, you know when I go out to eat I'm gonna have vegan or vegetarian meals. But when I cook at home, I'll use meat or perhaps you'll do the opposite if you cook a lot at home. You might try and put the meat in the back of your refrigerator and have the plant-based products in the front because we know that we tend to eat directly what's in front of us. The general message is that it's really not an all or nothing premise. Sometimes we think about meat in this way either you're a vegan or you're an omnivore but we know that we make choices about food every day. And so it's important to view each meal as an opportunity to make a vote for the issues that you care about rather than viewing meat consumption as an all or nothing premise.

Interviewer: Who's to blame for our dependency on meat, and why is it so hard for Americans to transition away from it?

Brian Kateman: We know that people choose food, not necessarily based on environmental issues,

but primarily on factors like price on convenience and on taste. And so, in part because meat is everywhere it's readily accessible. It's often inexpensive because of subsidies because we know that the government makes these products artificially low. We don't actually pay for what it's worth, we pay for it in terms of environmental cost but it's not actually captured on the price. And we know that it's often delicious and that's part because these foods are heavily processed and so people's taste buds are just essentially used to them. For all those reasons, people are eating 275 pounds of meat a year in the United States, which is incredible. Part of the challenges that we have to make plant-based eating more accessible, we have to provide people with restaurants and vegan options in the grocery store that are not only convenient, but are delicious and affordable. And we're starting to see more and more of that which is very exciting.

Interviewer: What do you say to those who are at an economic disadvantage and to those that say your ideas are only for the privileged?

Brian Kateman: Well what's interesting is that despite the fact that meat is artificially low in price. There are still many plant-based ingredients that are inexpensive. I mean if you think of rice and beans for example, which is a staple in countless diets it's extremely affordable. Last week I think I made like 20 tacos that had chickpeas they had beans, it had rice. Yeah I put some avocado in it, but you probably don't need that. You know, plant-based ingredients are often very inexpensive. I do think it's important to recognize though that veganism and vegetarianism can often be a luxury in a sense. It requires a certain level of time and training and education. We do want people to reduce their consumption of animal products as much as possible, because we know that every single plant based meal we have is one that's healthier for us and better for the planet. But it's important to remember that it's not all or nothing. So if you know someone who may be struggling or is not necessarily interested in veganism or vegetarianism simply encourage them to cut back on the amount of animal products that they consume is the way to go. I think it's about compassion. We do want to be compassionate toward the planet. We want to make lifestyle choices that are going to protect our beautiful earth, but we also want to be compassionate toward people and understand the limitations that they face. I think in the end, being compassionate toward all issues both the planet and the people that inhabit it is going to be what ultimately results in a much healthier world.

Interviewer: Why did you write *The Reducetarian Solution*?

Brian Kateman: I wrote the book because I think it's a really important message. There really is no other action that we can take that has such a positive effect on so many issues. Not just climate change, biodiversity loss, but in terms of improving our health in terms of saving farm animals from suffering on factory farms. And it's also incredibly easy to do and I love the positive message. I love that it brings everyone together. You know I get message from vegans from vegetarians from omnivores. It's really not a controversial idea at this point that eating less meat is a great way to improve the state of our planet. So for that reason, I'm really excited about the book. And I think it's a great introductory guide for anyone who's interested in cutting back on the amount of animal parts they consume.

Interviewer: So how do you respond to those who look at your book and say it's just another fad dieting book?

Brian Kateman: I think it's important to recognize that different people are going to be motivated by different reasons. And so sometimes, perhaps as an environmentalist, you might decide that you'd like to speak about climate change or biodiversity loss or deforestation, but perhaps you know someone who's not necessarily motivated by those issues. I think of my dad who definitely eats well over 275 pounds of meat a year and he's not interested at all in climate change. But when I tell him that I love him and I want him to be on this planet longer, I'd like him to cut back to reduce his risk

of heart disease, runs in our family, perhaps it'll reduce his risk of cancer and diabetes and certainly he'll lose a few pounds. And so he's more motivated by health message. You might know people who are motivated by financial reasons. A study recently came out showing that the average vegetarian saves \$750 on their grocery bill in comparison to a meat lover. And so it's important to use different messaging to reach different audiences. This way you're able to bring about the most change possible.

Announcer: Brian Kateman, president and co-founder of the Reducetarian Foundation, on how to get the most out of climate-conscious eating by reducing meat consumption to improve health and protect the environment.

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[Applause]

Greg Dalton: Climate One is a special project of The Commonwealth Club of California. Kelli Pennington directs our audience engagement. Carlos Manuel and Tyler Reed are the producers. The audio engineer is Mark Kirchner. Anny Celsi and Devon Strolovitch edit the show. The Commonwealth Club CEO is Dr. Gloria Duffy.

Climate One is presented in association with KQED Public Radio.