



Our Hen House Podcast: Transcript for Episode 686, Interview with David Meyer & Galina Hale

Mariann Sullivan: Welcome to Our Hen House, Galina and David.

David Meyer: Thank you.

Galina Hale: Thank you for having us.

Mariann: It is a pleasure to have you. I met you, Galina, a while back at some conference, and I've been wanting to have you, and I didn't even know about David, and wow! You guys are the power couple of the animal rights movement! I'm so excited to have both of you on, and I want to talk...

You're doing so many different things, and a lot of them are encompassed within the organization called Food Systems Innovations, and just for people who are completely unfamiliar with it, can you just kind of give us the elevator speech of what Food Systems Innovations is trying to do? And then we'll go back and get into some detail.

David: Sure, I will do that. So thank you again, Mariann, for having us. So Food System Innovations is a nonprofit organization that is working to reform the global food system to remove animals from the food system. For the benefit of the animals, of course, for the benefit of human health, for the benefit of climate, for the benefit of all the great benefits that would happen, to the extent we can remove animals from, certainly, the industrial human food system.

And so we do many different things. We have Galina, as you'll discuss in a moment, as an economist. We kind of look at the food system as an economic system. So where can we help raise the cost of animal inputs or cause governments to stop artificially depressing the cost?

Where can we...of course, reducing demand is something that everybody's always been working on for a long time. Getting more people to consume less,

and very specifically trying to work on alternatives and giving people alternatives that the average people will like, like plant-based meats, things like that. And even some of the higher technology things to see if that can give people options so that they can move away.

And then we also do a lot of foundational work where we. We have some fellowships. We support organizations. We do some granting. We run the Food System Research Fund, which Galina and several other people run for funding social science research.

We support scientific research into animal alternative foods. And yeah, we're just doing everything we can to try to plug any gap that we see.

Mariann: Looking at the website, I just find what you're doing really exciting and one of the reasons is, I mean, as you point out, you're doing a lot of different things, but a lot of it has to do with supporting research in a lot of different areas.

And it has always alarmed me that there is this enormous research disparity in universities, but I guess in other places as well, not an area I'm that familiar with, between what the meat industry is able to get done and what we, or anybody who's interested in replacing the industry, is able to get done.

They just own this world with land grant universities and whatever. Can you talk about that a little bit about this disparity?

Galina: So maybe I can take this one. So, I am at a university, and it's true that the animal ag sector was able to partner with a lot of universities over many years, to really work on the productivity of their industrial output. That, unfortunately, productivity of animal agriculture is negatively affecting animals' welfare, as we know.

It's also true that the government support, in terms of research, was largely directed to animal ag, as well, over many years. There is a research paper coming out of NYU that shows that, in terms of the support of yield improvement research across different crops from USDA, most of the support was going to wheat, soy, and corn, which are the main staple foods for animals.

So they really supported yields for animal feed, but nothing in terms of legumes or pulses that we are relying on right now for alternative proteins. And that creates this problem that if you have a farmer who is now involved in animal farming, with very high yields on the field and all kinds of subsidies that the

government is providing, and you go to them, and you say, “Why don't you convert to producing peas?” Say, so you can sell the peas to Beyond Burger production, right? They're going to say, “No because the yields on peas are so low that I'm not going to be profitable.”

And that's partly because there was no support from the government for the yield improvements in the kind of crops that we're looking at now for alternative proteins. And that's also a reason why so much of alternative proteins are relying on soy and wheat gluten. Because these are cheaper inputs because it's coming from the same sources as animal feed.

Mariann: Wow. Already, I am learning a lot. I always think I know everything, and then I have guests on, who know so much more than I do, and I learn all this stuff! *laughs*

All right. Let's talk a little bit about Food System Innovations and break down some of the different projects that you're working on. Can we start with the Sustainable Protein Innovation Institute? Can you tell us about the function of that?

David: Sure. So when Galina and I were...you know, I've worked in the animal welfare arena for many, many years, and it was really about six or seven years ago that I really wanted to pivot and get back into farm animals specifically. I had spent a lot of time working on things with companion animals.

Galina was very interested as well in getting more involved, coming from sort of an environmental approach. And when I started to meet a lot of the people who've been doing such great work in this area, we were hearing two different stories that seemed to be maybe at odds.

One was saying, isn't it amazing these new plant-based things like Beyond and Impossible? They're fantastic. They're just like meat. And then we were also hearing that we need more research. We need more research to lower prices or different crops or different inputs. And that's certainly something the Good Food Institute, whom we work closely with, was talking about.

So we ran a taste test. We said, “Well, which is it?” And we actually ran a professional taste test with a hundred meat eaters, both for chicken and burger, to determine- are the current products out there really great analogs in terms of taste and texture? And it turns out they basically weren't. There were a few standouts, certainly Impossible and Beyond, as we know.

And so where we came down on that is there are some really great products out there now. I mean, vegans don't need any of them. They're just fun for us. Right? But for people who were really...

Mariann: Right, right. No, this is for the other people.

David: Yes. For people who are trying to reduce meat, for some reason, that message has gotten through to them.

They're trying them; depending upon how they're trying them, it's not meeting their taste or satisfaction. Maybe it's not meeting their nutritional satisfaction. Certainly not meeting price. And so what's needed is a real kind of Manhattan Project on research, the kind of research that Galina is saying the government has not been doing at all levels in universities.

And so universities are now starting to do some research, again through a lot of the great work of the Good Food Institute. But the university research is fairly basic, and there's academic freedom, and we can't really control exactly what they're going to chase down. And then you have companies that are doing their own research, like some of the startups, but they are very risk averse, and they don't have the deep pockets to go down real scientific rabbit holes.

So there's a gap in having a nonprofit entity that can really do the deep research into new kinds of proteins and how to combine them and how to get the flavors better, and how to create new production inputs across all of the different technologies. The extrusion of plant-based stuff, precision fermentation that's coming on now, and even cultivated meat being grown from cells.

To do that in a way where we're not risk averse. We can hire the best people; we can get it done. We can hopefully do it in an open-source way so all can benefit from it. And that's where the Sustainable Protein Innovation Institute comes in.

So it's a new non-profit we're setting up. It's a partnership between Food System Innovations, Good Food Institute, and the Bryson Family Found. Being supported by Accenture, which is a big consulting firm, and looking to have both a dedicated facility that we're fundraising for now and research hubs at different universities, at some of the major universities around the world. So that is the hope and vision of the Sustainable Protein Innovation Institute.

Mariann: How far along are you?

David: We have a very detailed business plan. Now, we have a number of top world universities that are very, very interested in working with us, and now it's just a matter of securing the funding. We're talking to some very major movers in the funding world, and perhaps Galina will talk a little bit more about this, but she and Accenture are about to come out with what I think will be a very transformative bit of research on addressing, specifically, how quickly we have to replace animal agriculture to meet Paris climate goals.

And I'm pretty confident that once that gets out there and Accenture starts to push it, that will open the doors to some of the major climate funders like Bezos, Gates Foundation, Schmidt Futures, and things like that.

Mariann: When you go to universities, and you said there's a lot of interest in universities, does that interest come along with an expectation that you'll be providing funding?

Is that a key to having this research done at universities?

David: Yes. Yeah, they need funding. They have faculty and staff. But if someone comes along and says, "I wanna start an initiative," or in our case, an actual center, it requires a large commitment to funding. And then, they will bring together top people at their university.

They may hire new people; there may be people already working in adjacent areas who will want to now focus their research on the tasks of the new focus of the new center. But yes, at the end of the day, like so many things in our world, it all comes down to money. And I would say it's the same thing that Galina was addressing herself, too.

It's no accident that animal agriculture is so well entrenched in research and with the government because they're making money from what they do, and it's, of course, a cycle. The more money they make, the more money they can put into supporting candidates. That's why we also support an organization and work closely with FSA, which is Food Solutions Action, which is a C4 organization that also has a PAC.

So that now the animal side is contributing to politicians, and that really does get their ears. I'm sad to say, I'm happy to say for the animals, but I'm sad to say that's the system in which we live. But for the first time really now, senators and congresspeople of both parties are really getting to talk about this issue and the importance of changing the food system.

And I've been a part of that. And Food Solutions Action is leading that. And hopefully, we can start to turn the tide a little bit on the support and the funding that goes to universities.

Mariann: Yeah. I apologize for not being able to follow the names of all of them, but Food Solutions Action. Did you say that was an industry?

David: No, it's a c4, which is a nonprofit organization that doesn't pay profit off of its income, but you don't get a tax deduction for donating to them because they operate politically. And they also have an associated PAC, which definitely you can't make a deduction. They are donating to congresspeople and senators, and also at the state level. Your listeners can find them on the web.

Mariann: I wasn't sure where their funding was coming from. I just got confused about where their funding was coming from because the industry does at least pretend to put a little interest into this side. Do you think that any of that interest is sincere?

You know, I get my copy of Alt-meat from the Meatingplace people every month, and they seem to really be promoting this, and they're all putting money into it and then taking money out of it. Do you think that's a viable source of interest and funding for this kind of alternative research?

David: Well, Galina will probably have something to say on this, but I can say that similar to what we saw in the energy sector, where Exxon and Chevron made certain investments into alternative energy forms; I don't think anyone really thinks at this point that it was because they wanted to advance them, in fact, in some cases, they probably wanted to destroy them, but they certainly wanted to hedge their bets. And my understanding, knowing some people at major meat companies, is it's a similar thing. They're not there, necessarily, because they want to hurt animals; they're there because they want to make money.

And if they think the world is going to pivot to less meat, they want to be right at the forefront of that. And that's fine if they're at the forefront of that; it would even be great if they could speed it along. Their sincerity with what we're seeing with the drop in sales recently of plant-based meats, some of those meat companies are pulling back on their offerings in that space. So I think it's fair to say, and again, Galina would know a lot more about this than I do, that they're going to want to protect their interests. And if their interests align with an expanding industry, they will do that, but they're probably not going to lead the way, I would think.

Mariann: Yeah, that makes a lot of sense. Now, you've opened up so many different doors of inquiry. Particularly, I do want to talk about, I think you put it, the recent drop in interest in these products, and I really want to talk about that and what's going on. But I started out to talk about different pieces of what you're doing, and we only got as far as the Sustainable Protein Innovation Institute, so I know there's more.

People will be astounded to hear that's not all that you're trying to do. So another project, I think, is the Food System Research Fund. Can you tell us what that is?

Galina: Yeah, I can talk about this. So we started Food System Research Fund a few years ago with a donation from one major donor to fund research into, you know, what would it take to replace a substantial portion of animal products in the global food system with more sustainable and animal-friendly alternatives?

So we are now continuing to fund this program as FSI, and it's mostly social science research that we fund. We have a number of requests for proposals, and people submit their proposals that we fund and that actually comes from all over the world. So we have a few studies done in China that we funded- what are the consumer's interests in different alternatives? Do people see soy milk as a substitute for dairy milk? What kind of meat is consumed in China?

Which, you know, I was surprised to find out that it's not predominantly pork, which is what we think, with our stereotypes. You know, it was true maybe 20 years ago, but the new generation doesn't want to eat their grandmother's food. They want to eat what Western people eat. And so chicken is the most consumed animal in China these days, in the form of KFC and similar kind of... and dairy is consumed a lot in desserts.

And so these (are the) kinds of findings that the research we sponsor has delivered. We have also people who apply, they work either as independent researchers, or they work for some think-tank kind of organizations, or they might be affiliated with universities.

So we have kind of a broad net, and all the requests for proposals are on our website. And so, we have a pretty active research agenda right now.

Mariann: So you're sort of a conduit, is that right? That you seek the funding, and then you also seek the projects and the researchers, and you kind of marry these folks together and create the confidence in the funders that they will be funding a useful project? Is that...

Galina: Not exactly. That's how it started. But right now, most of the funds are coming from FSI, so from us directly. So we are not seeking additional funding. If somebody approaches us with a research question that we think fits well in our scope of interests, then we could serve as a conduit.

But we, as a fund, as people who are running the fund, we're thinking about the questions that we think are important to be answered. And then will solicit proposals in those fields, and we decide which ones need to be funded.

David: And I would just add, in the larger sense, the broader programs of FSI; we do have our own funding, so we are, as Galina mentioned, we are not in need of fundraising for ourselves.

But when we launch a new program like SPII, the Sustainable Protein Innovation Institute, that's where then we need to partner with other funders. And there are certainly major funders in the space who don't have the time to maybe think about what are the most important things. And we do re-grant directly to some organizations, so they might make large donations to us and then let us use our best judgment to figure out where to distribute that money.

So we're somewhere in between, where we can be a funder ourselves, and we are also a doer of activities ourselves. So we're somewhere in between your average nonprofit and your funding entity.

Mariann: Right. It really is a fascinating model, and I can see how it has obviously developed as you've gone along to add new aspects.

When you are obtaining funding and motivating researchers to do this kind of work, is climate the main driver behind who is funding this work? You know, it's always been a little hard, except for a few major contributors, to get money to help animals. So is climate really the keystone here?

Galina: So, David, maybe I can start on that.

So I think David mentioned briefly that we are trying to get climate money to get interested in animal agriculture. So far, my understanding is that is kind of minimal. And so that's the research paper that David mentioned that I'm working with Accenture on that would show that in order for us to achieve Paris goals, we need to substitute away from animal agriculture really soon.

So the model we have to calculate is very sensitive to when we are starting to replace animal-based foods with alternatives. and basically, to meet the Paris

goals and to be within our carbon budget to meet the Paris goals, we pretty much need to have a parity of the alternatives to the products that we're trying to substitute as early as possible; I would say 2023 would be good.

And parity means parity in terms of price, taste...if you think about - how do you get consumers to switch what they're buying? It needs to be a better product, or it needs to be as good a product if you then compare it with advocacy and explain why people should switch. But there shouldn't be any barriers to switching. And so that's what we call parity point.

And if we can get to that parity point in the next two years and then we can really ramp up the alternatives, then we can actually meet Paris goals by...you know, we can phase out animal ag by 2050. And that would really reduce the carbon use by food systems by about 30%.

And it's by far the largest intervention you can do in the food system. You know, you can work on food waste, yield improvements, and other things, but removing animal agriculture from the equation is by far the biggest reduction we can get from the food system in terms of greenhouse gas emissions.

Once we have this paper ready to go and we start publicizing the results, I think we can get the attention of climate funders.

Mariann: Well, how do you account for the...I mean, I know this, and you know this; probably everybody listening knows this is really bad and a huge contributor. How do you account for the fact that...I mean, is it psychological, or is it just that people have been focused so much on fossil fuels and other issues? Do you think there is a psychological aspect, the same psychological aspect that on a micro level creates people who don't look at this issue, otherwise good people who just don't look at this issue? Is the same thing happening at a macro level on the climate?

David: I have two thoughts on this. I think one is yes. Look, it is hard for people to say, "I am part of the problem." So you've seen this, you know, only recently are climate conventions and things that Galina goes to even serving vegan options, let alone serving all vegan food.

And that is certainly because of what people are used to and it's easier to say, "Oh, let's all recycle, or let's all go to solar when," we're doing that, rather than to say, "Wow," for all the reasons that we know, it's hard to change diets. "A basic part of my psychological structure and family history and cultural history is actually now, unfortunately, creating a problem."

So I think there is that, but I also think there's that tendency to...I think of the story of the person who, in the dark, is at the foot of a street lamp searching on their hands and knees, and someone says, "What are you looking for?" And they said, "I'm looking for my keys." And they said, "Where did you drop them?" And they said, "Oh, way far over there." And they said, "Well, why are you looking here next to the street lamp?" "Because that's where the light is." Right?

So I think we know that it's easy to understand that energy and replacing it with renewable energies is a solution to the problem. There's no real easy answer for the food system problem because there aren't really good (yet) alternatives. And so, in the same way that you saw over decades of government intervention to support research into finally getting the price of alternative energy down, that's easy to switch to because people don't care where their lights are getting lit from.

We need that same kind of government support now to hit this other less obvious thing, but as Galina mentioned, very important thing, which is the food system. So I think it's just a matter of it's not as easy a thing, so people haven't gravitated towards it.

Mariann: How do you approach the climate question regarding the impact of eggs and poultry?

You mentioned that, which I guess I'm stuck with stereotypes too because I thought the major meat in China was pork, but you're telling me it's poultry. And the climate impact of eggs and poultry is a lot less than other meat; is there a temptation on the part of a lot of policymakers here to think that's the switch? That's what we need to do?

Galina: So maybe I'll take this one. So, I have a little bit of an additional kind of take on your previous question. Why is it that we do energy, we don't talk about food? I think when people think greenhouse gas emissions, they pretty much think CO₂. But that's only like 60 to 70% of the story because we also have methane, and people are also familiar with methane, and so they think, "Okay, we're going to switch away from beef." For some reason, they don't think, "We need to switch away from dairy; it comes from the same species," but it is what it is.

Then there's also nitrous oxide. And nitrous oxide is a hundred times more potent in terms of entrapping greenhouse gases compared to CO₂. And even though there's less concentration of it in the atmosphere, it contributes to global warming a lot. A lot of nitrous oxide comes from poultry manure. It also comes

from all the fertilizers we're putting into the animal feed because when we produce animal feed, the restrictions on how much you can put in it are less strict and with human-grade food, and so that produces a lot of nitrous oxide. And also the production of those fertilizers, by itself, is also producing a lot of CO2 and other greenhouse gas emissions.

So, in the calculations we do for the CO2 equivalent of all the greenhouse gas emissions, poultry and eggs don't look so great either. They still have a lot more impact on climate than any alternative you can come up with. So is there recognition of this factor? Probably not yet. But I think there is more.

So, in United Nations' publications on climate, you now have a very clear statement that the food system needs to change. And so there is recognition of that. So I think it's coming, we're kind of at the beginning of this, and so it's now a good time to do more education, I think.

Mariann: Yeah, it's definitely a good time, like any minute now. *chuckles*

So another project, if I am analyzing your website correctly, and I want you to fill in if I'm not mentioning things that you're excited about doing, but you mentioned that you're helping promising but underfunded NGOs, which I think is really, really important work.

It's so hard for startup companies and even more so for startup NGOs who have great ideas to really attract funders. Is that right? And if it is, what are you looking for?

David: There are so many people doing great work all around the world, and a lot of it is concentrated in the United States and certainly in the West, and we need a thousand times more of that. But particularly in developing areas where there has been no Mercy for Animals, no Humane Society of the United States, and no PETA, that is where we think, "Well, going from nothing to something."

And there are very talented people there trying to do work and who maybe can start in a more advanced position than we did because they can maybe learn, where culturally appropriate, some of the lessons that we've learned if it applies in their culture. So we are particularly interested in finding really promising; it's fine if they're small NGOs or people who want to start NGOs in foreign countries. Women-run Indigenous-run is of particular interest to us, but ultimately we just want to get more good people in the game and in places where there hasn't been much done.

And one of the things that is talked about in Galina and Accenture's paper is the projected growth of animal consumption worldwide, and much of that growth, if not even most of that growth, is in the developing world. It's not that the US is going to start doubling and tripling the amount of meat we're eating anytime soon. But China is.

Mariann: God help us! *laughs* What a thought!

David: No. *chuckles*

But China is. It's great that people in China are coming out of poverty and that they have more money and that they have money to spend now, but of course, meat is associated, and animal products are associated with luxury, and people want that. And so when we talk about the need to replace global animal agriculture by 2050 or something, the easiest way to do it is for everybody just to become vegan. I mean, no research needed!

Just eat good, healthy food. We, you and I, get it. We all get it, but unfortunately, most people are not moving fast enough, and it is definitely not moving fast enough for the developing world, where that concept may not even exist. Even in countries where... China has a really good sort of a, you could call it, a flexitarian base where they eat a lot of vegetables, they eat tofu in the same dishes where they eat meat.

And this is happening in India too. The younger generation is not looking to increase their vegetable content. They are looking to increase their meat, and it's very hard for us to do advocacy there. It's certainly hard in China, because of the government control, to try to convince people of doing anything.

And so that's where the hope is. Alternative proteins, things that look and taste like what people want, will succeed there, but there aren't even entrepreneurs there. So we think that a good way to start is to get NGOs or people working in these countries, get them supported. And, of course, a dollar goes a long way in some of these societies. So it can be very cost-effective.

So that's what we're particularly looking for, and we network with people around the world to find the best people, and we try to support them. And we also provide coaching support to all non-profits, including those in the United States. Just how to run your non-profit maybe more efficiently. How to set goals and how to be more strategic. Things that I've learned in my experience that I want to give over to younger people. Your audience can't see me now, but I'm an old guy.

Mariann: I'll be the judge of that!

David: *laughs* Okay. Why shouldn't the younger generations learn?

People get into NGOs because they're passionate, and that is beautiful. You need that passion. But it doesn't necessarily mean they're skilled, and it certainly doesn't mean they have a lifetime of experience doing other things. And then when you try, as an NGO, to bring someone in who has a lifetime of experience doing under things, you usually can't afford to pay their salary. And they can't make their home payment because they have a life that is built on what they're used to being paid.

So we really are trying to help fast-track the education and the professional, operational abilities of people in the movement wherever we can.

Mariann: Yeah. I think that's such incredibly powerful work. We're always trying to find new people to interview, doing new things, and we've happened to interview a number of people in Africa in recent months, just doing extraordinary work and such tiny organizations. Both working for animal advocacy but also for advocating for plant-based diets.

It's so moving, and they're working with so few resources. It is just such powerful work, and Africa is a place where...not that factory farming hasn't taken hold at all, but it hasn't taken hold as well as it has in other parts of the world. So, one would think there might be a way to turn it around. And of course, the diet is just...well, I'm going through all these other...it's just a subject I'm interested in, but the diet is so colonial, the traditional diets are so healthy. It's just so frustrating. But moving on from that...

I have so many questions I want to ask you. And this one, I have to ask you - what is the smart money on? Is it plant-based, cellular, fermented, mycelium, or are you going to come up with something else?

Galina: Can I take this, David? So my answer to a lot of questions that people ask is the same. It's all of the above.

And the reason for that, so think about Impossible, which is probably, you know, if you ask people to rank plant-based burgers, would be the closest to what people think meat's supposed to taste. And that's partly because there is a precision fermentation component in that plant-based burger.

That's how heme is produced and then added. So I think we want to take the best from each technology and combine that into a final product, and that's how we're going to end up with a cheap and good product. Not for everything, obviously; maybe completely plant-based chicken nuggets is gonna do well, or maybe we need to add some cellular-grown chicken cells to make it really taste like chicken.

So, I think we're still not quite there in terms of cost and taste, as David said in the beginning. And so I think it would take all of the above, and potentially I strongly believe, something we don't even know yet to get to that parity, but I don't know if David agrees a hundred percent.

Mariann: Oh, controversy! *laughs*

David: Uh, well, we are married, so we better not disagree too strongly, or there's gonna be problems when we get home. *laughs*

No, I agree a hundred percent. First of all, I think we as humans tend to want to kind of encapsulate everything. Like people want this, people want that. When anyone ever says that, it's like there are a lot of people in the world!

There are some people who will want to eat this; there'll be some people who want to eat that. There's people in China. There's people in Indonesia. There's people in Sub-Saharan Africa. There's people in New York. I mean, it's a big world with a lot of different things and a lot of different factors. So I think it's not going to be any one technology, necessarily, that can do the perfect thing, but it is very likely gonna be some hybrid of something that is originating in plants.

Maybe we'll be able to discover things that require less processing. Because as Galina mentioned, because the inputs are so inexpensive for soy and wheat gluten, a lot of products tend to be made of that. And that works well enough. I mean, there are certain allergy concerns. But we're using extrusion, which is this kind of antiquated technology, just giant ovens, to try to spin out textures and perhaps if we could find plants or create plants; I never used to be into genetically modified stuff, but I'm much more open to it now, now that I see the possibilities there, to be honest. But I understand why people would be concerned about that, though.

But if we can find or create plants that require less processing, they just are meatier without even adding in additives and things like that; we could

potentially get to things like Galina mentioned, maybe some fat coming from cellular production. I think it'll probably be hybrid technologies.

Mariann: Yeah. What's the story on cellular production? I mean, for the past like 10 years, it's been two years away. Is it now two years away?

David: Well, see, I'm Jewish, and we've been waiting for the Messiah for a long time. Although Galina, who's Catholic, would tell me the wait ended a long time ago. *all laughing*

Galina: You missed it. *laughing*

David: Yeah. But, I think we do need to acknowledge that startups do need to tell a certain story to get to the next round of funding. I don't think people are being dishonest, but they need to be maximally optimistic because they need that funding to keep coming. But that said, we just had Upside Foods, formerly Memphis Meats, be the first company to get FDA approval in the United States.

We've already had Eat Just with approval for chicken in Singapore. So it is here. I mean, the cellular meats are here; they're just not at scale, they're not at price, and we are talking about things that don't yet have the structure. So it's much easier to produce something like ground beef, where cells don't have to be organized in the way as you do for like a whole-cut steak or something like that.

So we're a ways away on that. And we're certainly, you know, Mission Barns has fats and things like that that really are there right now. They're just awaiting FDA approval and will probably be the next one to get it here in the United States. So cultivated meat is here; it's just not here at the scale and at the price that it's going to make a difference yet, but it will eventually. It needs more r&d, more funding, and more government support.

Mariann: Let's get back to that issue that came up before, and I wanted to revisit, you know, where are we now and what's going on, and are we in trouble? Because I read a lot of industry articles, which is always fun, and they all seem to be touting the idea that alternative proteins had their moment in the sun and it was a big deal, and now they are occupying a very small niche, and that's where they're going to stay.

And I keep trying to say that it's like the internet. When the internet started off, there were a million startups. Most of them failed. Amazon didn't; it's the only one that didn't fail. *chuckles* But then things grew. Things start off with a big bang and then move back and then really start the actual growth.

So, who's right? Or are either of us right? Are we disappointed about where we are right now?

Galina: So let me give you my take on this. So starting from the end, I think we are a little bit disappointed with the lack of growth, or slow growth, in the market share of plant-based alternatives, especially meat alternatives. I think the milk is doing better.

We were hoping for better, but I kind of agree with you. It's not really a reason for despair, and it's not the reason for the lack of investment in the industry. I think there's some truth to the narrative that they grew really fast in the beginning because every vegan wanted to try one, and then they wanted to give one to their non-vegan friend, and so this kind of initial curiosity fueled some growth, and now they've kind of stabilized at a plateau because they've reached their constituency and other people don't care.

There is another; the supply side of the story is also some of those plant-based alternatives. They've grown to the scale that they could with hedge fund kind of money. And now, if they want to increase their capacity, they need to invest in something that's completely uninteresting, like a cold-packing facility.

It's a natural development of the industry. That initial return on investment might be high or might appear high because of their really fast growth, but then it kind of slows down to what the normal return on investment is, where hedge funds are no longer interested, but the products don't have enough of a track record to go to conventional financing, right?

And so it's a little bit of a doldrums, if you will, in the industry growth that I think every industry kind of goes through those growing pains. And that's where a lot of creative destruction happens so that some companies will not continue, and hopefully, some companies will. But I think I would say I'm not pessimistic, but I'm a little bit cautiously optimistic because we do need to give a push to the industry to allow for that fast growth.

And so if I guess you say one more thing. This specific thing that we're trying to do, replace something that people are already happy with, in terms of their consumption basket, with something that we think is better for the world, is a little bit unprecedented. Because when you have a new product that's satisfying some new need, like you know, an internet search engine, there is going to be growing demand for that.

As soon as people learn about it, they're going to use it. We're pushing a little bit uphill in terms of trying to tell people to discontinue consuming something and replace it with something else. It's a bit of a harder battle, and I don't think we had it done on a scale like that. The global food system is probably the biggest industry there is.

And so I think we need a lot of help from the government and nonprofits and all of the above. You know, whatever people are doing in animal space, we need it.

Mariann: Yeah, that's for sure. One of the industry's big arguments for why it's quote-unquote failing is that plant-based products are unhealthy because they're processed and have a long list of ingredients.

And I really love your take on this. I tend to always say that meat is processed; it's grain that's processed through the body of an animal, so I like to think of it as processed food. But your take on it is much more sophisticated. Can you just talk about that a little bit? I loved it.

David: Yeah, so I would say, first of all, it is in the interest of the meat industry, the incumbent industry, to say, "Oh, okay, our product is great, and this other thing is failing," or whatever.

I'm not pessimistic. It's not failing at all. This is the normal trajectory, like you said, Mariann, of a new thing where there's initial excitement, initial adoption, and curiosity. Some people are happy with it, some people are less happy with it, and then it sort of flattens. You also have a meat industry that is creating that false narrative that you just said that people are concerned about. Where they're comparing apples to oranges, right?

So they're saying long ingredient list. I'm sorry, if you pick so many products in the grocery store, just any product, and look at it, you'll see a very long ingredient list. I mean, someone was looking at a potato salad the other day, and by the time you looked at the mayonnaise and the preservatives and the salt and the spices and the stuff, that was a very long ingredient list. And it's all processed. Pretty much anything that isn't in the produce section, the fresh produce section, is processed.

I think you're exactly right that people think of meat as meat. They don't understand that the animal is a very inefficient factory for producing the muscle that we call meat. And it has inputs, and it has terrible inputs and terrible externalities. You know, fecal matter and hair and eyeballs and things like that. And that's where the promise of these new industries, these new alt-proteins, are

coming from, where we can just produce the thing we want without all the extra stuff we don't really want.

But I think there has been a very concerted and successful effort from the meat industry, especially in the US, to level that charge. And I think the plant-based foods industry has not done as good a job as it can do to defend itself against it. And I think part of that is because the industry itself is not exactly united. You do have plant-based meat companies that are calling themselves clean label, and so they're embracing that. "It's not good to have a long ingredient list, and look at us. We're better," but they don't taste as much like meat. And then the ones like Impossible (and) Beyond, that may have a bit more processing, are trying to replicate meat for people who are walking into KFC, who are probably not that concerned about their health.

No one is saying that a plant-based meat, by virtue of the fact that it's a plant-based meat, is a health food along the lines of like a lentil loaf. We're not trying to replace lentil loaf. We're trying to replace meat that has cholesterol and antibiotic residue, pesticide concentration, and all kinds of connections with cancer. That's what that needs to be compared to, and that's where even the most processed of any plant-based meat is still healthier than the thing it is trying to replace. There's no question about that. But people aren't gonna magically know that unless the plant-based industry can step out and effectively say it in ways to counter that.

And you may have found on our website; I don't know if you saw it on the fsi.org website; we have a little section for resources, and in there are graphics. And if you scroll down, you will see our take on the ingredient list for a ground beef burger or for chicken. And we just broke it out like, "You want to see the ingredients?" and we got a chemist to tell us what the ingredients are. And it's plenty long. But cows and chickens don't come with that on it because they're not required to show that.

So it is a PR fight that we have, but it's not a truthful claim. Yes, fewer ingredients or less processing is healthy...I mean, bread is processed. When you look at flour, I mean mostly what plant-based foods are is bread. It's flour, a powder and oil cooked together, flavored, and seasoned. Look at what focaccia is.

So people who that resonates with are not really thinking it through, but we can't blame them for that. The industry, our industry, the plant-based foods industry, needs to do a better job of defending itself against these wrong claims.

Mariann: Yeah. It really is a shame that there's such a disparity in what is required to be on the labels of these foods. I mean, no wonder people are deceived.

So aside from reasons for being deceived, we all know that there are, well, we don't know what they are, but we know there are really a lot of reasons why people don't see this horror and why people who care about animals continue to participate in...as you said, Galina, we're asking people to replace a food that they're happy with, but why are they happy with it?

From your point of view, what are some of the human behavioral characteristics and biases that are in favor of these foods or in favor of not changing what people are eating that we need to overcome in order to shift this market?

Galina: So I think there is what we call cognitive dissonance, right?

So people don't want to learn about all that's going on in the animal ag sector and how the animals are being mistreated. And that's partly because we have this tradition and culture and also a narrative that comes from the government education. You know, the kids have to drink milk, you have to eat meat, you know, and in our culture, it's ingrained that eating animal products is something we do, and that's normal. And we all think of us ourselves as good people. And so then, if you tell me that eating animals is creating some evil, I don't want to hear it because it creates this cognitive dissonance. Like, "I'm a good person, but something I do every day, multiple times a day, is causing some evil."

And that's a difficult thing for human brains, and we normally just deal with that by trying to ignore the message. So I can tell, you know, myself really as an example of this, potentially. I used to be a meat eater; I'm from Russia, we eat all kinds of dairy and a lot of other stuff. And I became vegetarian first.

And then, when people asked, the reason I became vegetarian was because there were so many reasons to become vegetarian. And as an economist and super-rational person, I was like, "Well, there's so many. There is environment, resources, economics, animal welfare, health, all these reasons to be vegetarian, but there aren't really any reasons to eat meat."

I asked my doctor, "Is there any reason to eat meat?" And my doctor said, "No," so it's just because it tastes good. It's not good enough. And so I stopped eating meat, and then eventually, I stopped eating other animal products, and it was a very non-emotional decision for me. But once I stopped eating animal products, the emotional part and concern about animal welfare came along because I no

longer had this cognitive dissonance. I could tell myself, “Wow, stuff I was doing before was causing evil, but I'm no longer doing this, so I'm a good person, and now I don't have a problem with telling the truth about animal ag.”

And that's difficult. And that's why we think that consumer messaging, in terms of other things, climate, health, could be an entry-level for people to switch their diets, and as they do, they develop compassion for animals and overcome that cognitive dissonance.

Mariann: Yeah, I have heard so many people say similar things.

David: I have something to add to that, Mariann, if I can. I think what we tend to forget as advocates, like we say, “Why can't we just get people to do this?” People are being bombarded with pro-animal food messaging all day. That is the advertising of the meat industry.

It's an industry, again, not trying to kill animals for the fun of it. They're trying to make money, and they are making money, and that money gets recycled into advertisements. So, when we talk about why is it so hard to get this message? I mean, if you watch any television, you will see commercial after commercial touting chicken nuggets and pizza and all of these things, and you're not seeing commercial after commercial showing what it's like on a factory farm. And what Galina mentioned in terms of we have this belief that we hold on to of this pastoral, you know, chickens running around the barn and the family farmer who's the salt of the earth and all that kind of stuff. That's gone.

You have a very powerful industry that works. I mean, look at what's written on the side of the delivery trucks; it's happy cows with sunshine! And there have been lawsuits about this, and unfortunately, we've tended to lose because the courts will assert that people understand that what's being painted as happy cows or happy chickens is just marketing. But people don't understand it. It's a whole zeitgeist. Most people would assume that their chicken is not coming from a factory farm, but it is. Virtually all chicken, mathematically thinking, is coming from massive factory farms. So people don't know that. The industry is not advertising that; they're advertising something completely different.

To me, you could ask the question, “How did we even get as far as we've gotten? How did we get as many people to even hear this message, given what we're up against?” But I do think this is where the climate coming in, and more and more health information coming in is going to start to assist because we're going to start to get new allies. And certain realities are going to come into play, which are terrifying, you know, climate change. But from the point of view of

the animals, it may just be the thing that saves them because without climate change, maybe we would just be going along at the same pace. But the sad news is now we cannot go at the same pace. We are going to destroy the planet, and that will become obvious year after year after year.

It will force the change. I hope, and when I say I hope, that I hope that we don't just develop technologies to more efficiently kill even more animals or something like that. But it is a chance that we haven't had before, and we're going to do our best to take that chance.

We're going to say like humans do, "We wouldn't choose this bad situation, but we're going to turn it into something good. And if climate change is what gets everyone to wake up about the un-sustainability of animal agriculture, so be it." And hopefully, things are going to start to move faster.

Mariann: Well, I really appreciate your positivity, David. *awkward chuckle* Like I don't have a lot of it myself. And I really appreciate your generosity towards people that, you know, I tend to think that people kind of do know about factory farming and choose to ignore it for whatever reason. I'm always confused by it, but thank you for bringing that more positive viewpoint about people. I think it's something we really need in order to make change.

And speaking of making change, I've kept you for a long time, but I have to ask this one more question. There's so much discussion floating around in the movement, not just in the movement but about creating change. The relationship between individual action, which in this case, of course, would be going vegan, and encouraging systemic action. And you know, there are those people who say it's pointless to go vegan; we just have to work on encouraging systemic action. And there are those people who have different points of view.

How do you feel about this? And in that context, whether individual action is important. What are the roles for grassroots activists, people who might be listening right now? Aside from buying and eating the right food, what more should they be doing to help make these foods more successful?

David: Okay. Well, I pause for a moment because I know Galina has thoughts on this, and I know she's thinking, "All of the above. All of the above." You know that we need individual action. That is what economists would call demand reduction. And we need action everywhere in the system.

We need corporations, like food service companies, to change what they're putting on the menu. We need governments to stop subsidizing bad stuff and

start subsidizing good. All of the above. And it's really true because it's a complex system. So as long as you're doing something positive in that regard. It's good.

Now, I do have a personal bias towards more of the institutional action only because we need a thousand times more of it, but we have had a lot of effort for quite some time on individual behavior change, and that's a tough one, and it needs to continue, but I think changing what's on the menu. What is the portion size? We are sponsoring some research on that. Can portions in restaurants be made smaller? Choice architecture, things like that, in cafeterias, how things are placed in supermarkets. So there are a lot of things that institutions could do that would alter people's behavior that would not encounter a lot of the problems we have when we're trying to ask someone to forego something that's near and dear to their heart, their way of eating.

And so I think that hasn't been explored as much, and so that maybe, I feel that that deserves a lot of the attention that it is getting. And I think also when you say what should individual people do, I think be a role model. And it's not just by how you're eating, but this was a really hard thing for me to accept.

I come through the martial arts. I do a martial art called Brazilian Jiu-Jitsu, and it's very much about a smaller person being able to use leverage and intelligence to beat a bigger opponent. And it's not by hitting them over the head because they'll hit you over the head harder. So when you approach someone and say, "Hey, change, you're doing something bad," that gets people to put up their defenses.

And at the end of the day, what we need to do for the animals is really simple. We just need to get people to agree with us. If everybody agreed with us, that's it. Factory farming is over; animal testing is over. It's all over. You don't tend to get people to agree with you by making them wrong and attacking them. That has been my experience.

So my experience is understanding, remembering that most of us did not grow up vegan. We were good people even before we were vegan. Give people a path. Understand what it is they want in their life. They want to be healthy, they want to feel good, and take them down that path. In my opinion, in a non-judgmental way so that they can learn how eating less animals will get them what they want, whether that's health or helping the planet or whatever.

And I think if you approach people in that way, they will be more receptive to the message, and they won't just shut you down. So very specifically, bring over

your meat friends for dinner and serve them a great vegan meal. That's it. And don't even be big about why it's vegan. Just at the end, mention, "By the way, you know, no animals died for this," and everyone will feel good for that, and they might say, "Let's do it again next week."

Or if you like Impossible Burger or whatever, buy one for your friend. Be an enabler of change without trying to tell people to change their personality. That's my advice.

Galina: Can I address that a little bit? I want to also make people feel a little bit more empowered if they feel, "Oh, all I can do is just go vegan, and I'm just one person."

But I think there is leading by example. There is, you know, talking to your friends, not being shy, you know, not hitting people on the head, as David said, but not being shy about your choices. And what I also think could be impactful is expressing demand for vegan options or vegan defaults. Every meeting I go to, every food truck on the street I stop by, even if it's really obvious that all they have is barbecue stuff. I always ask, "Do you have anything vegan?" And the answer is always french fries. But if I keep asking every day, maybe there will be something eventually, and then maybe other people will choose to buy it. And so there is a power of voting with your dollar, and there is a power of expressing demand for what you need.

And I've written to the Iron Man Foundation, I'm a triathlete, and I've written to them saying, "Why are you offering only chicken broths on the running portion of the, you know, at the aid stations, why don't you have a veggie broth or a miso soup or something like that? You're discriminating against me."

They did not change anything, but...

Mariann: I can't believe they only have chicken broth. That's outrageous! I'm horrified. *laughs*

Galina: The only warm thing they have is chicken broth. Yeah. It is outrageous.

Mariann: My gosh. Well, I totally hear what you're saying, and one thing that always drives me crazy is when people say, "Well, I'm vegan at home, but when I go to somebody's house or when I go out with people, I don't like to inconvenience them."

So what I always say, and I don't mean this, don't write to me, but “You don't have to be vegan at home if you don't want to be. The most important place to be vegan is where you can show other people that you're vegan and you're a nice person, and you're a perfectly normal person, and this is a great way to eat.”

And everybody has food needs these days. Everybody has their different little qualifications. You don't have to feel you're being rude by being vegan. I've heard people say that so often. So, I've done it myself, stopped into places where I know they don't have anything vegan, and just ask them if they have something vegan just to be annoying.

So not that we're being rude, David. Just a little annoying.

David: Hey, you know what? I don't have all the answers. One of the other things I wanted to say was it is important, as people figure out what they want to do to help, they also look at what their skills are and what motivates them. And if someone is motivated to be more aggressive, I'm not going to tell you that you're wrong. We need lots of different things. I'm just speaking from my experience, but I do think finding your special niche in what you could do, even if you're not working for an NGO, could be very powerful. Most people do things where they can impact other people.

Mariann: I totally agree. And none of us really know how to pull this off.

It's a big job, as you were saying before, changing the way the world eats. So people need to try different things and see how they feel about it. And people have different personalities. So just don't be quiet, just do something.

David: And also, just remember, we have to find, this is gonna sound, I think, Buddhist, but we have to find a way to try to work for change to end this suffering and accept that we can do what we can do. Suffering is always going to occur in the world for some reason. It seems like death usually involves suffering in the best of circumstances, and it's just part of life. And so don't get burned out. Just remember that we have this special, magical, holy capability of being humans in this world where we can be the voice for the voiceless.

Be that voice and understand, there's a saying out of my heritage, Judaism, it's not on you to finish the job, but neither are you free from doing the work. So none of us are gonna end factory farming anytime soon, but we do our best. We do the work, and every time we do that, we are doing the most important work we can for the least powerful and most vulnerable.

We will win. We are going to win. We're just trying to win faster, but we will win.

Mariann: Well, that is a really, really good note to end on. Thank you so much. And thanks for everything you do and for joining us today on Our Hen House. It's really been fascinating.

Galina: Thanks for having us, Mariann.

David: Thank you.