

Prof Frederic Leroy: The Politics of Nutrition & The Great Reset

Dr Ron Ehrlich [00:00:00] I would like to acknowledge that I'm recording this podcast on the traditional lands of the Gadigal people of the Eora Nation and pay my respects to elders, both past, present, and emerging.

Dr Ron Ehrlich [00:00:11] Hello and welcome to Unstress. My name is Dr Ron Ehrlich. Well, today we are going to take a holistic view of food in our world and with some of those messages and initiatives are coming from and perhaps even how to solve some of those problems. My guest today is Professor Frederic Leroy. Now, Frederic studied Bio-engineering Sciences at Ghent University and obtained a PhD in Applied Biological Sciences. Since 2008, he has held a professorship in the field of food science and (bio)technology.

Dr Ron Ehrlich [00:00:56] His research primarily deals with many ecological aspects and functional roles of bacterial communities in (fermented) foods, with a focus on animal products. In addition, his interests relate to human and animal health and well-being, as well as to the elements of tradition and innovation in food contexts. The research is often of an interdisciplinary nature, involving collaborations with experts in microbiology, animal production, veterinary science, social and consumer sciences, cultural anthropology, and food history. He is also a member of the research group of Social and Cultural Food Studies (FOST), and we talk a lot about the importance of culture in food.

Dr Ron Ehrlich [00:01:45] Frederic acts as an editorial board member of the International Journal of Food Microbiology (IJFM) and the magazine 'Food Science and Law' (FSL). He's president of the Belgian Association for Meat Science and Technology (BAMST) and of the Science Committee of the Institute that serves the Belgian Society of Food Microbiology. Look, he is just incredibly well qualified to take, dare I said, a holistic view of this very complex issue of global food production, security in a very holistic way. I hope you enjoy this conversation I had with Professor Frederic Leroy.

Dr Ron Ehrlich [00:02:27] Welcome to the show, Frederic.

Prof Frederic Leroy [00:02:28] Hi Ron, thank you for inviting me in the first place.

Dr Ron Ehrlich [00:02:32] Thank you. Well, listen, there's just so much I wanted to discuss with you. I know your background is in technology and food. Well, actually, I wondered if you might just share with us, give us a brief background because you come across so many different areas that we should all be interested in. Share with us your way around.

Prof Frederic Leroy [00:02:52] Right. So I studied Bio-engineering and I got a master's degree in Bio-engineering. It was '98 if I recall them. While I was doing my master's in Bio-engineering, I was interested in nutrition, so I did a master's thesis on the topic of Food Security in Burundi. And so I was always interested in food in the first place. And then I did a PhD in Food Science and Technology. On a case study which happened to be Fermented Meat. That was a European project at the time. So there was money for research on the quality and safety of fermented meats. So meat fermentation, that's what you do when you make Salami, you ferment meat. And I was looking at the microbiology of that because I have a background in engineering. I was applying mathematics to study microbial populations and how to contribute to fermentation. And then I got a professorship

in Food Science and Technology and I continued in the domain of Meat Science and Technology.

Prof Frederic Leroy [00:03:54] So I happened to get stuck with the topic of meat just by sheer coincidence because I was at the European project at the time looking into the topic. Meat turned out to be more than just a case study. It turned out to be a very interesting topic of research coming with lots of connotations, coming with all sorts of symbolic and emotional discourse. And over the years, so since I started this topic became very controversial. So as a scientist, I was studying something that has become controversial. So if you study and if you want to hydrodynamics and you study planes, you'll never get much into trouble, even though planes contribute to do with gas emissions. But nobody talks about planes all that much or nobody talks about any other topic of research to that degree, I would say. Whether you're in the humanities or in the life sciences, at least not in a polarising way.

Prof Frederic Leroy [00:04:48] I've discovered that there is a kind of global network in place, and it's not necessarily one single network, you see, but it's a kind of actor-network busy here that is trying to install a belief system that wants us to consider animal-sourced foods in general. Not only red meats, animal-sourced foods in general as something that is bad for us, it's bad for our health, it's bad for the planet, it's bad for the animals, it's bad for about everything. And by going further, I started to see that this is also connected to high-level institutes and organisations and that they are setting the agendas worldwide as far as food policy is concerned and that these agendas are becoming radical. It's not any more of the thing that should all do that is optimising the future.

Prof Frederic Leroy [00:05:37] And that includes, of course, animal agriculture, because everybody knows that animal agriculture is not in a perfect state when there are many things that need to be addressed and they need to be addressed seriously. I mean, I'm never saying that it all is fine in animal agriculture, but the programmes that are on the table are radical. I mean, they're really radically trying to take away as much as they can of traditional animal agriculture as we knew it. And what happened is that they tried to depicted as the worst of industrial factory farming. So it's all up. So they give you these Netflix memes whereby everything looks completely terrible and then they try to generalise that as being the global state of affairs, which is not the case clearly. I mean, these are sort of selective, cherry-picked images that they want to use to make a strong message, which is going very well. I mean, the message is really successful.

Dr Ron Ehrlich [00:06:30] You've actually said so much there. I mean, firstly, the first thing that comes to mind is your initial interest in meat and microbes. Boy, you couldn't have picked two more topical subjects because we've become so preoccupied with microbes and our whole relationship has changed. But meat also and here you are as a scientist, as I am a clinician and interested in health, and you never actually expect that you're going to have to deal with politics, corporations.. Advertising, OK, we accept that. But this is, well, one has to really take a holistic view of this. Doesn't it? You have to approach this from a holistic perspective.

Prof Frederic Leroy [00:07:11] Yeah, absolutely. At the time when I started my PhD and nobody was really talking also about food systems as such, a food system was not a thing. But you discover that if you start looking at food seriously, I mean, not just in your narrow little field of expertise, but if you start to seriously look at food, you are forced to take a system approach because you cannot have a conversation on one single aspect of food without taking into account all the other things. In the case of meat, for instance, if you

would start a discussion about healthy food, if you convince people or even if you have been not strong enough arguments, they will very quickly shift the goalpost and then they will talk about sustainability. And if that is I mean, still, if you manage to come up with a response in that field, they will shift it to ethics and so forth. And even within each debate, there are so many subdivisions. So you can only enter this debate if you're holistic or if you're able to tackle the various domains.

Prof Frederic Leroy [00:08:11] You cannot be an expert in everything, obviously, but you need at least to have this horizontal view on things so that you can understand that if you change one thing or if you take out one single element of food or food production system or anything like it, you will have to deal with so many other things and something that is very often forgotten. And that's something that I also learnt from my work with the people from anthropology and so on, is that it's very closely tied to culture as well. And we in our rational Western mindset, tend to forget about all those things, it's just a matter of calories and protein amounts. But we tend to forget that food is also culture and identity. And it's not something that you can just rationally calculate so that everybody is happy. It's very complicated.

Dr Ron Ehrlich [00:09:01] And actually, it's interesting when you look at this holistically, starting from the politics and economics, going right through to the science, because, you know, we were always told evidence-based is the gold standard. One thing that's occurred in these, for example, at the World Economic Forum, which is set up as a meeting of the minds of the top people in finance, politics, business, etc., something that's come out of that is the thing called the great reset. I wondered if you might share with us what that is, what is the great reset? What are the implications of it to us?

Prof Frederic Leroy [00:09:40] Yes, well, we don't really know it's a part of it, probably just fancy talk, but there are specific agendas as well. I mean, they're specific ideas and specific plans for the future that are being designed by the people that run the most powerful corporations and investment centres. So the great reset basically sounds like we will reset everything and come up with something new, which is a bit of a false representation because what they really want to do is to just continue with the same but just intensified and take it to another level.

Prof Frederic Leroy [00:10:14] It's all about centralisation of power. It's about stepping up the technolog. It's about consolidating control over resources, and that's valid for all domains. So what Davos is doing here is they're coming up with strategies and PR messages whereby they try to make the public ready for that change. So in my view, it's not really a reset. It's using the models of the past. But because the models of the past are getting to their end in a way that what they're trying to achieve is becoming more difficult. So it's not that the mindset is changing, it's that the paradigm is changing somewhat. Because in the past, everything in markets is based on growth. Things have to keep on growing and growing and growing. But I think we've reached a level where growth is becoming more difficult because there are not so many things that allow further growth except maybe high tech and stuff like that.

Prof Frederic Leroy [00:11:16] If you think about food, for instance, food, if you look at food, the food market can grow because of numbers or it can grow because of added value or new niche markets that are being created. But in the end, it starts to turn in circles. So I'll take the example of food, but it's valid for most of the other things as well. It's also valid in the sustainable development side of affairs. But if they try to do that, it's all about increasing the potential for growth and increasing control over resources. So control

over land, control over water, control over no agricultural production and logistic chains and supply chains.

Prof Frederic Leroy [00:12:01] But if you look at food, the growth in the multinational food corporation environment has been driven by things like, for instance, the low-fat idea. The low-fat idea was installed after the budget. Also the government said, you know, industry, you have to reduce fat and Americans these are going to be good for you. Because the American dietary goals were basically the most influential ones. Because of that, the industry found a bonanza because they could just engineer their way through all this. So what they did is take out the fat. But if you take out fat, the food becomes quite dull. It's not very nice if you take out fat, so you have to put something in place. And so they engineered this. So it's quite difficult because you have to if you take out fat, you have to come up with all kinds of texturisers and through engineering, they made a new product that they introduced as something more healthy.

Prof Frederic Leroy [00:12:54] So they promised something. And they create the gradient of value that is based on promise, which is a fake promise, as we know now, is not a promise that was scientifically very robust. But that was a huge market. That's just one of the ways that growth in the past was taking place and how multinational, sensible created profit. But that's over, right? Life with low fat, nobody really has all that much interested in anymore than you had the lifestyle marketing, beverage diversification. You could create all kinds of crisps with all kinds of flavours from, you know, from the classical pickles to waffles. See what I mean?

Dr Ron Ehrlich [00:13:30] I know. I see. I know. I see the label. I read the label on plant-based meats. And I often wonder whether the term plant-based is going to be to the twenty first century with processed food was to the 20th century. But we wearing the badge of environmentalism on there as well.

Prof Frederic Leroy [00:13:50] Yeah. Yeah exactly. So that's, that's what happens here, Ron. The thing is that the old materials are not good enough anymore. The narrative is not, is not working anymore. So the great reset in the food environment wants to come up with something which they will use the same tools because their processors. So they want to process and they want to have cheap and cheap. And so the paradigm is you need to process as much as you can to create value. You need to promise as much as you can to increase the prices. You need to have the most controllable and standardised input for your system as well. And the plant-based market is perfect. You know, you promise a lot. You promise all sorts of environmental benefits and health benefits to a lesser degree maybe, but especially environmental benefits. The materials are going to be protein extracts, and as you say, if you look at the label, there's nothing wholesome inside those foods. It's all extract some oils and starches and who knows what's there.

Dr Ron Ehrlich [00:14:47] I think one of the problems is that food has become a commodity. I had the honour of talking to Professor Paul Ehrlich from Stanford University who wrote The Population Bomb in 1970 and predicted that you know, we just wouldn't have enough food to feed ourselves. And I asked him, this was just last year. I said, well, how do you reflect on that? And he said it's too early to call because one of the things was that they didn't anticipate was that there would be more obese people and overweight people, 1.6 billion compared to 700 million that are lacking in food. So this commodification and industrialisation of food have turned it into a marketable product that requires growth, not growth in financial growth. And yet it's something that's just so basic. I mean, we don't commodify eral we do actually water now. But who would have thought many years ago

we would buy bottled water when it was coming out of a tap, but this commodification thus turning it into an industrial. It's kind of asking for this kind of thing, isn't it?

Prof Frederic Leroy [00:15:57] Right. Absolutely. Yes, absolutely. You see it specifically for animal-sourced foods because the commodification there is even worse because you're stepping away from living animals and you're talking now about products. So we tend to forget that this is coming from animals. And if you're confronted with that suddenly because and you don't have the background anymore or the world view to incorporate that in a solid manner, it's highly disconcerting. It's problematic. If you see an animal suddenly and you see that and you understand the animal is killed for the food, well, basically that's something we should be able to live with. I mean, it's something we've always done. But because of the commodification and the reduction of something that earns more respect, I think that more understanding into something that we just buy into plastic, that's problematic. The fact that we uncouple that.

Prof Frederic Leroy [00:16:52] If you look at how meat products are being sold, even meat, fresh meat is being served now compared to how it was generations ago or even two generations ago, we tend to take out all the hints of animal origin, but it's all to take out the fat, the take out its fillers. It's very often it's things that are in bundles or in sandwiches or breaded somehow or they're like nuggets. You see, we tend to take out anything that reminds us of the animal origin. That's a commodification of food. And that's what someone has called the shift from being a small fish, which is an idea of animals. So understanding that they're eating animals to become cycle fish, which is the eater of meat. Meat as a product. And that's a pity because it creates all sorts of problems and it's not a very rich relationship.

Prof Frederic Leroy [00:17:46] If you look at food in this way and you tend to dismiss that food comes from life, basically, but it's so very, very strongly, but it's valid for all foods, it's not a healthy situation if you take out the foundation of human relationships here, because food is in the very, very beginning, food has been the thing that brought us together, we have information from, for instance, from the, as far as we can go back, of course. But even in the Mesolithic times, we find there's evidence that different plans were coming together and clans are normally would fight in between them, but they were coming together. And so we find the remains of those big feasts that they were organising around food. So they found remains of the turtle shells and so on that they found. And so there was a huge feast and those plants were coming together to take up the tensions and they were going to separate ways again. But each plan and every day was also meeting around food. So food is fundamentally an element that always has the structure of human communities.

Prof Frederic Leroy [00:18:57] Now, what happens if you look at current society? You will see that in many families now everybody eats something else. So this social code is completely destroyed. Everybody likes something else. Or some people don't eat this. The other one doesn't want that. And then before you know it, you'll eat something else. You put it in the microwave. You can eat at different times because the one comes home at five, the one comes home at six-thirty or is not hungry yet. And you see, so that whole social glue of the whole social function of food is disintegrated. And that's what you have with the commodification. If you don't see food anymore as something that is important for human well-being beyond nutrients, then you have a problem.

Dr Ron Ehrlich [00:19:41] Yes. No, I like your reference to the cultural aspect of food. And it's just so critical to the World Economic Forum was one thing which brought together one

group. But in science, another thing happened, and that was The Lancet report came out, was published in 2013. The lead author was actually Professor Walter Willett, who I think is one of the most cited authors in nutritional value in the nutritional world. And it was entitled Food in the Anthropocene: the Eat-Lancet Commission on Healthy Diets from a Sustainable Food Systems. Now, given your background and all the things you've already shared with us, I'm intrigued to know what did you think of it when you read that?

Prof Frederic Leroy [00:20:25] When it first came out, it was quite a bit of a shock because what they were proposing was, first of all, the academics said to mean it's a good exercise. You know, let's try to find out what will be a healthy diet and how much can we generalise part of that idea and then see how we can go forward with this and also how that fits within environmental constraints. So that's what makes perfect sense. But the way to fill it in is so extreme and radical and so disconnected from the standards of evidence that you would expect for something like this. It was just so antithetical to anything that I would expect to find in such a proposal that I didn't understand what was going on. And I wanted to see where this was coming from. And that's one of the that's one of the elements that triggered me to go further and explore who's who's saying what and where the narratives are being created.

Prof Frederic Leroy [00:21:16] And it didn't take long with a bit of research to find out that its foundation was behind the report because Walter Willett is the one that designed the diet, basically, and it's very much based on Harvard-style nutrition epidemiology of chronic disease. But taken into Willett way, you know, we guessed this strong aversion against red meat. So that has to go down, has a very strong aversions against starched vegetables. So nobody talks about this but this part.

Dr Ron Ehrlich [00:21:41] If you had to summarise the Eat-Lancet? You know, what are the main points of it?

Prof Frederic Leroy [00:21:46] And what is good to mention is I would say it is a Quasi-vegetarian Diet. It's called the Semi-vegetarian or Quasi-vegetarian Diet. It allows you to eat animal-sourced foods to a certain level, but a very, very small level. The emphasis is on cereals and beans and oil. And it looks very much like the Macrobiotic Diet. The Macrobiotic Diet is based on the yin and the yang balance. And then some foods are more yin and some foods are more yang. And so they come up with a diet that looks very much like that. They have the same emphasis on especially reducing meat has to go all the way down, especially red meat. They emphasise things like starchy vegetables. Both of them have to go down and, you know, the beans and the seals go up and also they come with the same foodborne EAT-Lancet in its marketing campaigns, it shows all these fancy dishes with colours and macrobiotic diets also tend to do that. It looks all very glamorous, but if you really look at how this is still going in daily life, it's mostly grains and beans and oil on top of that. So you take out most of the animal-sourced foods. You are allowed to have some of it. But in very small proportions. Like, for instance, for Australia, what would happen in Australia is that it would have to reduce your red meat consumption by 91% of it. 90 %, to that level. So that's really very low.

Prof Frédéric Leroy [00:23:13] And the interesting part is that this diet has been designed for health. It's presented as something that will save the planet, but it has been specifically designed for health. And then they have compared that with the planetary boundaries. And they said, well, it fits into planetary boundaries. But the design has been based on health that has been admitted by the science director, which is amazing because then you imply that you should go to that low amount of animals source foods. And it includes also fish,

which is known to even come out as an official in epidemiology. But you have to reduce everything for health. And that's just bizarre. So something is going on here. And the idea basically seems to be because the Eat-Lancet Diet is heavily propagated also by the World Economic Forum, and they're very closely interconnected because even the founder of EAT is a World Economic Forum young global leader.

Prof Frédéric Leroy [00:24:06] She's Norwegian and she's very close to Davos. And the whole diet is pushed by the World Economic Forum and by the World Business Council for Sustainable Development, which are interconnected entities. So why are they doing that? I mean, what would be the benefit of global elites to push a diet that is basically seen as something radical historically? I mean, even before people will come up with a Vegetarian Diet over the Macrobiotic Diet, it would have been dismissed as something of the fringe or you can ever take that seriously. These people will never follow that.

Prof Frédéric Leroy [00:24:39] They understand that people will never follow that because in the EAT-Lancet report, they also say that this is not just a design of a diet, it's something that is interventionists because they say that they have to overrule consumer preferences by heart policies. It's really in their document and it's in everything they say and do. It's about pushing that diet. It's about taxes and hard policy interventions. So from nudging to the heart policy interventions, but they want to push it through. And it is endorsed by those elites. So what is happening, as far as I understand from looking at it, is part of it is ideological, part of it is probably honestly the idea of what it, I think, probably is a genuine part of there that comes from will it and he really believes what he's doing.

Prof Frédéric Leroy [00:25:25] We can have debates about the science, but anyway but then there is this fact that the result of this is that in the food supply system, you will take out a main part of the food supply system if you will drop it to very low levels and then you create the gap. Now, that gap has to be filled in. So the gap is being the idea is to fill in that gap where the imitation of foods and that's why EAT is not only close to the votes, they really formally collaborate with all sorts of corporations through, for instance, with the fresh initiative.

Prof Frédéric Leroy [00:25:57] The fresh initiative is a collaboration between the EAT Foundation and the World Business Council for Sustainable Development. Now, within the fresh cooperation, you find all the big multinationals, all the big food processors, or they're all the ones that are now coming up with a plant-based, you know, products, even PepsiCo now, you know, they work to get Beyond Meat and they come up with this PLANeT-ary snacks sorts of things. So those people really would like to fill in the gap, obviously. But then you also have the lab meat, the lab-grown meat. You have insects, those sorts of things. So Silicon Valley is very much interested because they're into all this tissue engineering and, you know, the lab, the meat lab creations. And so there's a lot of investors that are stepping into the game. And that's why on the EAT advisory board, you'll find someone, for instance, from BlackRock.

Dr Ron Ehrlich [00:26:44] It's interesting as you speak like I reflect back on the food pyramid, which morphed into my food plate, which in Australia has become the Australian Healthy Eating Guidelines. And we're often told evidence-based is everything. Well, the evidence is anything to go by. That wasn't a very successful public health campaign. And when we look into how that came about, we see that industry had something to do with those guidelines.

Dr Ron Ehrlich [00:27:13] And now you are taking this up, too. I mean, this is industry beyond industry and this is from communications to media to chemical to food to right through the gamut that is influencing these guidelines. It reminds me, and I wanted to ask you, because I know you've read this book and I have too, and I think it's worth mentioning now about that book: *Against the Grain*, because we have so much to learn from the past, don't we? Both health and how our health deteriorated. And I wonder if you might share with us your observation is, what the essence of how grains came about?

Prof Frédéric Leroy [00:27:53] The mistake we have made in the way we look at history is that we tried to unify everything in one narrative. Usually, it's messier. Right. But basically after the Hunter-Gatherer Busts, which dominates our past it's what does it 99 percent of our past as humans, depending on where you draw the line, of course. But let's say that after the hunter-gatherer past, which is a very diverse area on its own, people started to settle in certain areas of the world for all sorts of reasons. We don't really know why the climate may have played a role, but most likely. But people start to settle. Now if you settle, you tend to accumulate resources. And while you settle, it was also the shift to the first signs of agriculture, crop agriculture.

Prof Frédéric Leroy [00:28:36] People were already eating grains before to a certain degree. Lower, lower amounts probably. But the idea was not new, but it started to be localised. It started to become something more settled. And then with the settling, the societal model changes. So hunter-gatherer societies are that we noticed from contemporary hunter-gatherers. Hunter-gatherers tend to be quite horizontally structured. You know, you shouldn't be all that much of an ego in a hunter-gatherer situation because and you see that they on purpose, try to downgrade themselves. If they do something impressive, they try to downplay it because they don't want to be too much above the other ones. So status is not all that much of it, it plays as well. We cannot say that it's not an intrinsic human feature, but it's downplayed culturally.

Prof Frédéric Leroy [00:29:24] Now, what happens if you settle down and resources start to accumulate? You create a vertical status differentiation. And the one that has the most animals, for instance, at the time was given the most prestige or most of the resources, and accumulating resources became an expression of wealth and power. And how can you do that in such a setting? Well, by accumulating what you have, what you produce, and that was mostly crops.

Prof Frédéric Leroy [00:29:49] And *Against the Grain*, what Scott is saying, he's saying that it's no coincidence, probably that grain became so important and much more than, let's say, underground tubers because the grain is something you can control and you can watch it as a tax, as the taxman. You can see how much grain is there. You can collect, you can tax it. And the grass stuff is more difficult. And so grain became a symbol, became something very essential to the community. It was to be taxed. It was to be controlled. It was to be given to the despots and the societies organised in that way. And it's used to those transitions also to look at again, at animal-sourced foods and livestock, because it comes with implications for livestock as well. Look at not together as before. Those people hunt besides gathering and fishing. But when they hunt, they have to kill an animal, you know, and the thing is, with humans, killing an animal is not an easy thing, even for hunters. And that's why even contemporary hunters have very ritualised approaches to animals. So if you kill an animal, it's a transaction in a way. It's something you give something, you take something and you give something. And they have this relationship that is about asking permission and forgiveness. And so they have a very complicated --

Dr Ron Ehrlich [00:31:13] -- and honouring the whole animal.

Prof Frédéric Leroy [00:31:15] Absolutely.

Dr Ron Ehrlich [00:31:17] Not putting bread, not breasting it and hiding it but literally honouring the whole animal.

Prof Frédéric Leroy [00:31:23] Exactly. Yes. And when, with the transition to, during the Mesolithic and mostly during the Neolithic times, is that animals probably had that initial function, that spiritual connotations still because they were at the centre of the cosmology. But the relationship changed. It became a little bit more vertical as well. It was about, you know, but on the other hand, they were still representing the Gods. If you think about ancient mythology, you see this close and interlinkage between animals and Gods, even sometimes represented as animals, in most cases in the earlier versions.

Prof Frédéric Leroy [00:32:01] And so cereals became a staple. But animal-sourced foods remain extremely important, not only nutritionally because they're absolutely essential nutrition as well at the time. But they also became important for, again, social functioning and how society functioned then, how everything was structured and the access to animal-sourced food became limited. But from time to time, the animal was slaughtered. And during the slaughtering, it was in many cases must have been a very ritualised event. It was dedicated to the Gods and whatever was the best part of the animal, which means the flavour, the aromas, they went to the skies and went to the Gods. And maybe this was dedicated to the birds as well and burned. But then the other parts were given to the elites at the nicest cuts to the priests. And then the rest was distributed amongst the community. So it is still functioning as something that brings people together. So it had this horizontal dimension but also had a vertical dimension. It structured power relationships within a society.

Prof Frédéric Leroy [00:33:07] And then with the Industrialisation. So that evolved in cultural contingent ways. But then you have the industrialisation where it begins with commodified products and all that complicated, very rich relationship we had with livestock became something else, it became an economical activity, and that's not necessarily always a bad thing because it allowed us to overcome malnutrition in many parts of the world. But on the other hand, it maybe goes too far because we start to lose our connection with it, and that can be a source of a lot of trouble. So probably we don't, of course, have to go all the way back to what we did in the past. That would be ridiculous.

Dr Ron Ehrlich [00:33:46] Animal products has been demonised not just in health, but in an environmental sense, vegetarianism, and even going one further, veganism is being worn as an environmental badge here. I mean, there's no doubt that industrial animal agriculture is a problem. And in our programme, my programme, I've explored regenerative agriculture many, many times for many, many reasons. And actually, interestingly, I know you will probably have heard of Allan Savory, who said, "It's not the animal that's the problem, it's how it's managed." Is regenerative agriculture scalable? To a global level, these regenerative agriculture the answer?

Prof Frédéric Leroy [00:34:32] I think it's important to understand that there is not a single answer. Not me. That's the problem with the Atlantic Commission. They come up with one planetary health and one vision and one imposed globally that has been criticised for that reason only because it's contextual. You mean everybody wants something different

ecosystems, different cultural preferences, different psychological needs? You cannot do that. You cannot come up with a single answer.

Prof Frédéric Leroy [00:34:53] Now for production systems, I think the same is valid. We need not one solution. We need several solutions and we need to learn what are the most optimal solutions. And while doing so, getting to better production, to a better food system, and a better way of producing our food, anything that would flip the whole system to just one production method will be dangerous. And that creates fragility because if it fails, it has enormous consequences. We don't really know the carrying capacity or what the potential is of regenerative agriculture. I'm very much in favour. I mean, if you look at my output, I've been very much in favour of regional ganef and holistic grazing, and AMP. And so I think it's an extremely powerful method, but it doesn't mean that we have to scale all of livestock production to this system at once. At least we have to learn. We have to find out more.

Prof Frédéric Leroy [00:35:43] And there are some farmers doing extremely interesting work, extremely promising work, and it should certainly be stimulated. It needs a warmer welcome because the results are impressive. But the problem is that a lot of it is very practical. It's farmers doing the work here. It's not academics. So there's not a lot of academic information that is reproducible and standardised so that people can have a look at it and policymakers can have a look at it. You need to be confronted with those farmers doing their thing and seeing how it works in practise. And that makes it more difficult to come to implementation. But also maybe it's predictive value for the predictive value of any large intervention that would install regenerative agriculture. But I do think it has fantastic potential. It helps you to create or recreate soil through soil health.

Dr Ron Ehrlich [00:36:33] Well, Frederic, I have heard that we only have enough soil for 60 more harvests, that I've heard. I'm sure you've heard that, too. When you hear something like that is in your academic life and knowing research, would you just kind of shake your head at that? Or think, "Actually, that's probably right." What's your reaction when you get something like that?

Prof Frédéric Leroy [00:36:52] Well, I think those statements always come to with slogans, and that's always a bit dangerous. But what is absolutely true is that soil is degrading and that we are getting into trouble with respect to soil fertility and the use of land. I mean, what we can do with the land. And so that's clearly the case and that's extremely worrisome. So, yes, that's usually problematic. Now, how many harvests are left and when it will not just be so many harvests and then everything stops, right? It's not, doesn't work like that. But we certainly need to look at soil health and we certainly need the animals to work on that.

Dr Ron Ehrlich [00:37:24] Yeah, if we have industrial agriculture, animal agriculture as it is. On the one hand, that clearly has its problems from environmental and animal rights and human health. All of it.. it doesn't tick many of the boxes other than its very good commodity. And if we have that on one hand and we have, on the other hand, a regenerative farm, what are the solutions? What you see as the solutions in between?

Prof Frédéric Leroy [00:37:50] Yeah, so usually my position tends to be that I am very reluctant to adopt anything that is top-down. Right. That's probably also my affinity with Scott. Top down things really. I dislike them very profoundly because --

Dr Ron Ehrlich [00:38:07] Tell us what top-down means for the viewers.

Prof Frédéric Leroy [00:38:09] Yeah, so top-down means that you impose it. So you're coming up with but mostly it's coming up with a model that tries to simulate what is going on in reality and then try to make predictions for the future. So and then based on that, it's what the Club of Rome did in the late 1960s and that limits to growth and the model early start from this point of view as well. But it becomes very quickly Malthusian. So you have these ideas about the system. You model it and then you say we have to have this. So you optimise things based on, you know, because if you model things, you can optimise, you have algorithms and the stuff and then you come up with the world view that you think is the best solution according to your predictions, like calculations they want to impose that. That's top-down. Top down means when it starts from a centralised either a government or a policy system that has an idea and just imposes it from the top. And everybody has to follow that idea.

Dr Ron Ehrlich [00:39:02] And the Great Reset would be the 2020 version of top-down?

Prof Frédéric Leroy [00:39:06] Yeah, yeah, yeah.

Dr Ron Ehrlich [00:39:06] On steroids.

Prof Frédéric Leroy [00:39:09] On steroids completely. And then you have the opposite, which is the more bottom-up side of things where you start from the ground up. And that's what I like also about the regenerative agricultural domain, is that it starts from the soil, it starts from the basics. And I think that is a much more robust way to act because we've had examples top down interventions in the past, and they were pretty horrendous. If you know a bit about food history, there are some interventions that were really five-year plans, this in five years. And so everybody follows and then you get the catastrophe.

Prof Frédéric Leroy [00:39:39] And then bottom-up is when you start from the ground. So that means the advantage of that is that you start from the local context because the problem with the top down is that they underestimate the importance of contextuality and how much diversity there is between different types of land, between different types of cultural background, between different types and so forth and so on. There's so much heterogeneity in the system that you can, there's so much complexity that you can never, ever, ever get it into a model that is robust enough. And that's the thing with the system approach because it's a system approach and a system intervention basically.

Prof Frédéric Leroy [00:40:16] If you have a system intervention top down, you know, that system will react. It will counterreact to the intervention. And that happens in ways that are difficult to predict. And they come in all sorts of surprises that are unpleasant in many cases, and if you start bottom-up, you start from your local context. So you kind of optimise for your local little system and you see and it's kind of a mosaic where everybody, you know, local systems optimise starting from the local resources. Now, probably you need a bit of both, right? You need a bit of top-down as well because you need to harmonise certain things because that's what you have with this story that you're looking for.

Prof Frédéric Leroy [00:40:53] Regenerative agriculture is perfect to start from a bottom-up approach. So you can fill it in and use your build up from your local farmer communities, your local soil, your local animals, and you get to the benefits. But there's another thing that you need to have in mind is that and that's that you have to feed so many people so you don't really know well what the global output will be of implementing regenerative agriculture everywhere. And you have to be careful that if you do that too

drastically or if your bottom-up becomes a top-down, then by saying, you know, we make it public all over the place and we just let people do whatever they want. Well, you have to be careful that you're not creating a food security problem. And maybe that needs a more gradual transition, maybe that needs something at least needs to be harmonised here. We need to be sure that if we shift systems rapidly, that we're not creating food security problems. And that's absolutely right. That should be central.

Prof Frédéric Leroy [00:41:52] So what I think has to be done is that in the food system, what we need to do is a certain part of it has to be top-down. And I think that has to do with drawing red lines, you know, the certain red lines that we have to draw and those have to guarantee animal welfare. They have to guarantee that deforestation stops. They have to guarantee that water pollution cannot exceed a certain threshold before it becomes problematic. So are certain things that have to be imposed as policymaking. Right. That needs to be done.

Prof Frédéric Leroy [00:42:20] And then within those constraints, within the playing field that is being created, then you can try out all sorts of bottom-up things. And the ones that are the most beneficial will eventually make it, because if they're not outcompeted, because of unfairness created top-down, because of a top-down vision favours of certain corporations or certain ideas. If they get their own chance, then they will make it. Because they will just show the benefits and those benefits of regenerative agriculture can be spectacular also for productivity because we tend to see because it's often presented as something that is extensive. So there's low productivity and but it's not necessarily the case because you have a higher stocking, meaning more dense herds. And so we don't really know how much cattle that will eventually allow for. We don't you know, we know it from certain case studies and from certain specific cases. But globally, we don't really know how far that can go, how productive it will be, how much people feed.

Dr Ron Ehrlich [00:43:25] So in my when I've spoken to regenerative farmers, the common theme that I've heard from them is that they're actually soil farmers. They might be they may have sheep, cattle, whatever. But essentially what they're doing there, if you like, holistic context, is that they are nurturing and growing the soil and maybe they'll have less sheep this year and a little more next year. But overall, they'll always have. But they are essentially guarding the resource and ultimately that. And even if you're top-down, you know, it has to be good for the environment. It has to be good for the animal. It has to be good for human health. Everything else, everything else you decide has to fit into that framework. That's the system.

Prof Frédéric Leroy [00:44:10] Yeah, that is a great way of putting it. It's indeed it's the soil farmers and also, you know, there's the livestock component, but it doesn't stop there. I mean, the livestock component also allows you to have more powerful crop production as well. This is about the integration of is so silly, just to vilify one side of that animal binary and then, you know, the integration can also be done. So what you're doing with the animals is also good for the crops. And it's a matter of integrating both nicely and intelligently. Now, it's not, of course, making only feed and giving that feed to the notice. We know more or less what is going wrong and what is what should be optimised. It's a matter of doing that, but it is not a matter of taking out livestock. It's a matter of doing the proper things with the livestock.

Dr Ron Ehrlich [00:45:01] We've always, I've always looked back on the past and I notice you referencing, you know, that you needed to get into anthropology and look at and how societies developed. And I think from when I look at human history, there were two big

steps forward from our time as we diverged from the apes. One was when we decided to eat animals, which seemed to concentrate our nutrients. And the other one was when we discovered fire, which made a lot more food available. What do you see some of the challenges in this demonisation of animals in our health, from a health perspective and environmentally? I mean, they're not they're not without their risks either. It's one thing to say this EAT Lancet vegetarian or vegan is for good, for the health of the planet and the people. But there's another view on that. I wonder what your view on that might be.

Prof Frédéric Leroy [00:45:56] So if it well, imagine if you go ahead like this, if you take out livestock to for a substantial part, I mean for most of it and you so you fill in that food gap with the products they're proposing. But even if you do that only with wholesome plans, let's give them and the benefit of the doubt and say they can they'll try to fill it in with good wholesome foods. Well, it means and that's what the thing is when you mess with systems, it means that you will have to produce a lot more nuts, huge amounts of nuts because the EAT Lancet prescription for nuts is extremely high. So it does not need to be produced. They need a lot of water. Right? We already see trouble with not some water.

Dr Ron Ehrlich [00:46:41] I think they call after a hundred percent increase in nut --

Prof Frédéric Leroy [00:46:44] And I thought that was even more than a hundred percent. So lots of nuts and then all those all that grain and peas and whatever they want to produce also needs to be produced. So how will that be produced? Probably it will end up as, you know, monocultures, because, you know, those people want to optimise right there, the planners. So this is for big populations that will be huge monocultures. Now, imagine what that would eventually mean for soil and what that would mean for the need for fertilisers and the need to control those cultures without losing them because of misharvest. And everything needs to be treated to the maximum. That's also why there are a lot of big companies involved in the ecosystem. You find all the, you know, the yards and all those companies are also very heavily involved in this.

Prof Frédéric Leroy [00:47:33] So that comes with repercussions. Is that going to be a food system that we like? Or so that's something that I would worry about me over this. So we're making the divide of animals, plants so we can talk about the animals. Things are going well or wrong. I mean, we addressed a little bit of that we can talk about more extensively, but then on the plant side, we hardly hear anything about it. You know, the way avocados are produced, the problem with avocado production, the thing where cashew nuts, for instance, how that's affecting also human health because, you know, they get unpeeled and they have all kinds of aggressive components and they get on the skin. So there are all sorts of plant production systems that come with their own bout of trouble and they only get amplified because they will need to take over so much animal food that disappears.

Dr Ron Ehrlich [00:48:26] Well, I often ask people who advocate that if because of animal welfare, how big does an animal have to be to count? Because, you know, when you clearing land, clearing natural environment, when you're removing pests, I mean, mice, rats, rabbits, birds, ducks, they animals that you want to keep off your crops, you know, I mean, if you want to let everybody go for it, that's not quite that simple. Tell me, Frederic, when you look at all of these things, are you and we've got EAT Lancet in 200. No. EAT Lancet 2019, Great Reset 2020. Are you an optimist?

Prof Frédéric Leroy [00:49:08] Well, I tend to be, generally speaking, but I'm also a realist and know that there's a danger here. I'm an optimist because, of course, this scenario is

what I often say is that we should not confuse the loud voices that we see in mass media with the public that this is not what the public wants, the public doesn't even know about this, but they have never been consulted. And this is why this is one of the democratic processes. This is something they want to install transnationally and that it has to trickle down to guidelines and the people don't see this coming. Nobody knows about this almost.

Prof Frédéric Leroy [00:49:46] But I'm still believing in the resilience of human communities. I think people will not accept those people will organise themselves. But I'm realistic. And from the point of view that this idea that I understand that will create damage, it will create damage because we already have problems now with respect to micronutrient deficiencies, even in the west, in the West it is not only about the global south, local middle countries, it's about the West or the South, but the rich countries, basically.

Prof Frédéric Leroy [00:50:23] So we already have malnutrition and deficiencies. And if we are going to come up with such a radical change in the diets, instead of making them more robust and more nutrient-dense, I'm going to move it in that direction. This will create trouble, especially in the vulnerable populations, if we're going to take out, we already see examples of this we try to take out meat and dairy from hospitals. Why? For the environmental side of the story. So they want to take out meat and dairy from the diets of those people that need to recover and that eat their nutrients the most. Because the planetary challenge for nutrition is solving hunger is part of it. You know, we need enough kilocalories, but then you have to focus on the things that are causing most of the damage, most of the suffering. And that's protein malnutrition. And that's and that's a range of certain micronutrients. And we're talking about Iron that we talking about Zinc and B12 and Vitamin A and Vitamin B and those kinds of micronutrients and those --

Dr Ron Ehrlich [00:51:28] -- of which microbes are an important part of that story, aren't they?

Prof Frédéric Leroy [00:51:34] For some years, what, 12, for instance? It's a microbial metabolite. But it's also those micronutrients that you most easily most of those big challenges, most of those micronutrients you most easily obtained from such foods. And you can say whatever you want, it's much more difficult to obtain them from plants, some of them are feasible if you do it carefully and supplement well, but it's much more difficult. So it just makes your days much less robust by taking out one of the most nutrient-dense part of it. I mean, the most intense part of it, you have leafy vegetables. They're great, right. But cereals as a basis is a foundation for what is a. It's a scenario that will lead to problems and what you see is that you know what, they try to argue that while we can fortified foods and we can supplement foods, but in the end, what you end up with is the cornflakes approach. You have something that is of low nutritional value and you add all sorts of vitamins and you present us a health food. Now, this should never be a basis for global bias.

Dr Ron Ehrlich [00:52:50] No. Well, listen, Frederic, I just wanted to finish up and take a step back now, because from your role as a professor in Brussels, because we are all individuals on this health journey together through this modern world, I wondered if you might share with us what you thought the biggest challenge for an individual on that journey might be. You may have already identified many of those, but taking a step back, what do you think?

Prof Frédéric Leroy [00:53:16] The silver bullet things are dangerous, right? It's every individual needs a different thing. And if you have to look at common, the common

framework here, I think is freedom, I suppose, like gaining freedom in a way that you can take care of your health yourself. You reclaim health, that's what individuals will need to do and the solutions are diverse, some people can maybe get back to health through a consolidator, healthy low carb diets, or others. Who knows, maybe even vegetarian diets. For many people, it will work as well. All sorts of diets and lifestyle approaches can work.

Prof Frédéric Leroy [00:54:05] But the main thing that we need to achieve, I think, is freedom, not being dependent on others to take care of our health as much as we can so that we are in charge of our own health, that we can reclaim it, that we can understand that health is a fragile thing and that we need to cherish it. Because if you don't have that in mind, you quickly get in trouble because you're not taking care of it. And then you become the subject of that system that wants to take care of people. And that comes at a huge cost, not only a financial cost, but that comes as a huge social cost.

Dr Ron Ehrlich [00:54:39] That is exactly what this podcast is all about. So it's wonderful to have you as a professor, articulate that so, so well as well. So thank you so much for joining us today and sharing your wisdom with us.

Prof Frédéric Leroy [00:54:52] Thank you for inviting me, Ron. Always a pleasure.

Dr Ron Ehrlich [00:54:57] Freedom, what a note to finish on. To have the freedom, to make choices, to be in control of your own health, to actually take control of your own health. This is a theme that recurs on this podcast so often where I believe this honestly, I think your health is just too important to leave to anybody else. You've got to take control of it yourself. And in Australia, we're incredibly lucky to have a health care system to fall back on when crisis occurs. Because let's face it, when it comes to crisis therapy, there's no better place to be. The problem is our health care systems are a chronic disease management system. You've heard me before. I'm not going to go on about it.

[00:55:37] But I thought it was interesting also to hear Frederic talk about Top-Down. And I asked him about Allan Savory. And I still think of Allan Savory as one of my all-time heroes and mentors. I love what he talks about. But when he said to me many years ago on this podcast or not, maybe two or three years ago on this podcast, that if you are expecting the change to come from above, you will be waiting a long time because big organisations and governments are very slow to take on new information. They are very there's a lot of ego and reputation involved and they lack common sense and humanity. And I've also been very focussed on who influences public health messages. That's been a theme I've been following since, well, since the late 80s, to be honest, but really got into general health in the mid-90s to explore the role of the chemical, food and pharmaceutical industry.

Dr Ron Ehrlich [00:56:41] But when I start to hear about the World Economic Forum in Davos, where it brings together all industry leaders from all areas -- social media, technology, finance, fossil fuel, big industry, probably the military there as well, I don't know. But when I hear them formulating The Great Reset and I know the role of the chemical, food, and pharmaceutical industries in the food pyramid and all that followed it, I am filled with dread, but I'm an optimist. And part of why I'm doing this podcast is because I am an optimist and I believe our ability to communicate with each other. It's being challenged, but our ability to communicate with each other has tremendous potential.

Dr Ron Ehrlich [00:57:27] And I think that is one of the most exciting parts of the future for us. How we as a bottom-up billions of people, the 99% who aren't the top one percent, how we as a group I learnt to organise ourselves and the other thing that I've said, too, is

that while we get to vote each and every well, we don't get to vote each and every year. We get to vote every three or four years. And we can argue about what a difference that makes. I believe it's very important and I'm very proud that in Australia it's compulsory. I believe it should be. But we do get to vote each and every day by how we spend our money. And that is ultimate, along with our ability to communicate with each other, is where we are going to make a difference.

Prof Frédéric Leroy [00:58:22] That's it for today. I hope you enjoyed this conversation. I hope this finds you well. Keep in touch with some of the great initiatives. We've got an online wellness programme. I think we're heading towards a subscription model, too. And while the podcast and transcripts are going to become still become free, the subscription model for a very nominal fee is going to give you behind the stories access to a whole range of other things and other events that are going to be online and online courses and discussions with experts, lots of live Q&A, and lots of opportunities to interact. Anyway, it's a very exciting time ahead and I think we're going to make a big difference. So I hope this finds you well until next time. This is Dr Ron Ehrlich. Be well.

Dr Ron Ehrlich [00:59:07] This podcast provides general information and discussion about medicine, health, and related subjects. The content is not intended and should not be construed as medical advice or as a substitute for care by qualified medical practitioners. If you or any other person has a medical concern, he or she should consult with an appropriately qualified medical practitioner. Guests who speak in this podcast express their own opinions, experiences, and conclusions.