

Friday, July 3, 2020

Michael T. Roberts ([link](#) to bio)

**P.Mainguay:** Thank you for joining us Michael today, and being part of our first podcast and article series on food security. It's a great pleasure having you with us today, thank you for your time. Michael, you're the founding Executive Director of the Resnick Center for Food Law and Policy at UCLA School of Law.

I understand that you are also very well versed in a broad range of legal and policy issues from farm to fork in local, national, and global food supply systems. You've also written *Food Law in the United States*, the first major treatise on the subject, published by Cambridge University Press. You are also the co-editor for the *Food Law & Policy* casebook publication by Wolters Kluwer.

Again, thank you for joining us, this is very exciting expertise and set of skills to explore in regards to the theme of food security in the age of the pandemic and COVID 19.

Last time, we talked about you have two sorts of dynamics when it comes in terms of how the food supply has been affected. In the United States, you have trends where you see a lot of potatoes in Idaho, for example, being dumped or donated, in significant surpluses. While in the same time you have a lot of long lines at food banks and a variety of other community support locations addressing malnutrition, food security, for the community.

So we have those two dynamics that are not too dissimilar to other parts of the world, and I would like to explore with you again how policy affects that. This is truly a global problem. Since we last spoke of the global nature of food insecurity in the age of Covid 19, a whole lot has been happening not only in the terms of the pandemic, but also a locust swarm is taking over large parts of eastern Africa these days. And a lot of other aggravating factors are on the horizon. So with that in mind, I would like to see how you see what's happening in the United States and on a more global basis in the world.

**Prof. Roberts:** Thank you. Well, that's a big question. But I'm delighted to be here with you, and at the risk of being the first one on your podcast, we'll see if we can get through this without too many interruptions. I think this covid 19 pandemic is on everyone's mind. It certainly has accentuated the problems in the food supply system and raised questions about "what is food security", "how does it work", and "what does it mean?", and "it is the same from one country to another " and "how do we think about these things on a global level? I do think there's a couple of factors that are consistent no matter what country we might be discussing in any given minute or moment.

One is that food security is an issue everywhere. And by that I mean, do we have enough food to meet the needs of individuals as well as countries, and not just food but nutritious food. And food that is conducive to environmental objectives. Making sure we keep in mind climate change and other environmental issues. And so the production of food is actually really, really complicated. And I say that because, when we think about the way we organize the way that we regulate food and prioritize food, we don't do a very good job

with it. And I use the word *governance*. Governance is the way that organizations or countries are managed at the highest level. And every country that I have encountered around the world has significant governance issues.

So take the U.S. for example. The U.S. regulatory system is very complicated. You got federal laws. You have state laws. You have a number of different agencies that regulate the different parts of food. In fact, when people talk about the food system, I'm always a little hesitant to buy into the notion that there is an actual food *system*.

We use the word system to account for this sort of supply chain that we have, that has a lot of different steps in it. But there really is no system. In fact, using the word system sort of belies the complexity of what we have. But there is a real need for systems thinking; which is different. Systems thinking requires us to look at integrated approaches to food, to get out of our silos, to think about the way we look at the food supply chain, in an integrated, holistic way. And it sounds sort of obvious, but trying to pull that off is really, really complicated and very, very difficult.

(6:00) So for example in the United States, you have the Department of Agriculture. Known as the USDA that is responsible for managing the production of food, and for promoting food, and for dealing with trade issues, and dealing with a whole other host of issues from forestry, to you name it, to nutrition, that are related and sometimes not related to food. But it's a really big department that has a lot of responsibilities. It's responsibility for the safety of food, really is just limited to just meat.

(6:37) Then you take the FDA for example, the Food and Drug Administration, which is not a department, but it's an agency within the department of Health and Human Services. It's a public health agency. And it has the responsibility for the safety of food. Except for certain products that have meat or are meat.

So, you know, there is a famous example of a pizza. If it has meat on it, is it regulated by the FDA or the USDA? Well, it actually depends on how much meat. If it's 2% or more then it's regulated by the USDA. And so these are some of the complexities that you run into.

But when we talk about safety, you know you would have to distinguish the safety of workers, for example, in a covid 19 situation, working in a meat facility, as opposed to the safety of the product itself. And you have different agencies that are involved for example on these issues in a meat packing plant that sometimes cross lines. And it's really hard to develop a sort of a coherent, cohesive approach to regulating food. Let alone just making sure we have enough food to eat, and making sure that it's nutritious, and it is distributed in a fair and equitable way.

So it's a very complicated, convoluted system that we have, if you can call it a system, that is easily, I think, prone to disruption. And that's why here at the center here at UCLA, the Resnick Center here for Food Law and Policy. We are very interested in ways of building resiliency. I think that's sort of the key in the food supply system. By looking at innovation, technology, structure, best governance practices, leveraging. And

also looking at something that I think that correlates really nicely with what you're doing. Is looking at the problems of not just a fragmented system but a consolidated food system. So consolidation of key parts of the food industry arguably have left us more vulnerable. So when you have one or two meat packing facilities, for example, that are susceptible to covid 19 problems and all their workers have to stay away, you wake up the next day and the CEO of Tyson says that there's a food shortage. And everyone is in a panic, but I think it illustrates how consolidation can actually cut against food security. And the importance of having local approaches. And making sure we got urban areas sufficiently planned for food security. From smaller cities to large cities. To what you're doing with your work in Cambodia. It was done in Vietnam and all throughout Asia, and Europe, and Africa. These are international, national, and local approaches to food security. And they all have to sort of jive together. And how you regulate that is a complicated issue.

**P.Mainguay:** (9:49) It's fascinating how the system is consolidated and fragmented to me. It is consolidated into different silos, and it is very difficult for silos to communicate obviously. That's not really how they are designed. I'm wondering, between this, and instead of calling it a failure of governance and policy, they are working with the system that they are working with. So between those two things, the difficulty of **policy-ing** a fragmented and consolidated system, being what it is, in terms of both the complexity of implementation, policy of design and all of this, I'm also wondering what your thoughts are on how this affects accountability in the world of food security, food law, and food safety.

**Prof. Roberts:** (10:45) Well, I think it affects accountability in a really big way. So take example, bees. I just finished authoring an article on the problem of honey fraud. A lot of the honey that is imported into the US is fraudulent. Or it comes into the US and then it's blended so it becomes fraudulent. This is a serious problem. And it's an interesting problem because it's really not just a consumer issue, it's an economic issue that affects producers. And so producers, honey bee producers in the United States for example, really face this dilemma, where demand is at an all time high for honey, but their price for selling honey is at an all time low. And that's due to the market being flooded with fraudulent honey.

And a lot of folks would say, "Well, that affects me buying honey off the grocery shelf." You know it may bother me, it may not bother me. I can buy expensive honey from the farmers market and get honey that I really want. That I trust in. I have faith in. But what we don't realize is that this problem actually affects the ecosystem, in a way that a lot of people wouldn't otherwise recognize. And who's accountable for that? The reason it affects the ecosystem is because the honey bee producers not only produce honey, but they also manage the pollinators, the honey bee pollinators, that go out and pollinate all the farms that produce all the fruits and vegetables that's what we buy in stores.

So the... whose accountable? The USDA doesn't have authority over regulating and enforcing against food fraud; only to a limited extent. The FDA, which is interested in food fraud, especially if it affects people's health and safety, doesn't have authority over the ecosystem and environmental issues that honey fraud leads to. And so, when you have fragmentation that actually dissipates accountability, and fingers can be pointed in lots of different directions or nothing gets done. And that's just one example of a lot of examples that you can find. Just preparing for pandemics, for example, who has the authority to try to integrate everybody to get on the same team, is more difficult than it seems like. Especially if you don't have accountability built into the system.

**P.Mainguay:** (13:39) That's a very very good parallel in terms of accountability and fragmentation.

Absolutely. Systems thinking sounds like the only thing that can get us out of there. But it also appears to be a change in the very system that we are contemplating where better accountability can also be put in place in terms of these matters of food.

**Prof Roberts:** (13:57) Ya and I think there's one other interesting thing that's going around the world too that I would be amiss to not mention, that the relationship between the private sector and the government. A lot of food is traded. We live in an international and global system whether we like it or not.

And there are large food companies, especially retailers, who are interested in the way consumers think about food. I mean, this is their business. The sort of proxy for consumers, if you will. The consumer desire for certain kinds of foods, or certain kinds of methods or processes that are followed in food production, really matter! I mean this is one of the reasons why plant-based substitutes for meat are so popular; because that consumers are interested in alternatives to meat from animals. Why? Well, they may be concerned about climate change. They may be concerned about impacts on the environment. They may be concerned about the effects on animals. They may not even be vegetarians, but they may be concerned with what happens in these large consolidated feeding operations. Consumers may want less meat in their diet. There's a whole host of reasons why consumers might be interested.

(15:18) And so, this relationship between private and public is very interesting. Because governments can't always reach beyond their borders to regulate food. There have been some attempts to inspect food in other countries, and you build processes. But there's a limitation, so we kind of rely on each other. So there is this need for international legal instruments, and to build this sort of coherency, to build systems thinking; you have to bring public and private together. And that gets really interesting and sort of messy as well. But I think that we are moving in the right direction in many ways as we think about these partnerships, but again you sort of need, you always need a referee right? If you played sports outside with your friends as a child, things go well [but] better when you have rules and have a referee in place to regulate and make sure that everything is coordinated and rules are followed. And that's sometimes a thing that is lacking in this space just because it's so complicated. There are so many different players and so many different objectives.

**P.Mainguay:** (16:25) Speaking of different players, actually, and varying objectives, we've been talking about the private sector, and the government, their agencies, and all of those sort of macro players; let's call them. There's also been a lot of grassroots community based movements, in terms of promoting, well in a certain way food safety producing better all organic produce locally. A farm to table kind of movement and but also food security with those local food banks that really come through for those families in need in the dire times that we are in today. And so, we have the private sector, institutionalized, private sector and then we have the government, and then we have the non-profit and community-based activities. And I'm wondering, you, as somebody who deals with macro policy, how do you see a relationship between policy, non-profit world, grassroots organizations, and these types of community based organizations in achieving food safety and security for all at the community level.

**Prof. Roberts:** (17:42) Extremely important and in growing importance everyday. Great question. Thank you for steering me in this direction. I think that the food movement, which is sometimes what it's called, is also a social movement as well. And when Michael Pollan started writing his books, starting with "Omnivore's Dilemma". Then a lot of other food writers, and people started getting interested in local food systems issues. It was really also about a connection to food, as much as it was about the food itself. And so there's lots of kinds of things that feed into this.

But food security in and of itself is really, really important as a local issue as well. Especially, when we are dealing with inequities. It's one thing to go to the farmers market in Santa Monica, here in Southern California, and enjoy a bountiful row of wonderful foods to buy and take home and eat and enjoy the local produce. It's another thing to go to South Central LA and not have access to those kinds of foods. At least *affordable* access. And all you have is maybe a fast food restaurant or gas station food to buy. And you know, we see the same disparity in local school lunches, and so on and so forth.

I live in a community here in Pasadena where I can go to my community garden and I can grow food. And I grow lots of it. And I enjoy it. Do other folks in LA, and in different parts of LA that are less affluent, do they have the same opportunity. Then you see that play over into race. Different ethnicities suffer with more insecurity than do others. That begs the question as to why. And so there's a number of different levels of social issues that are intertwined into the food issues here as well that are really important to understand. But I think that local solutions:

A. The federal government as we all know has suffered a significant degree of paralysis. And so it's hard to get things done at that level.

B. The local communities can be incubators, innovators. It's a lot easier to try to innovate at the local level. And so you can have people try to experiment with different kinds of CASs. Which is Community Agricultural Systems. Where you grow food locally. You deliver it locally. You help people who are under privileged to participate in that process. Our students at UCLA for example have purchased produce from these types of farms in LA and we distribute it to faculty and other students who want to buy into the system. These are ways that local communities can really help. So local initiatives are extremely important.

It certainly is very much a part of food security, and self determination too which is a form of food sovereignty. Which is another interesting term we think about. But urban development around food, I think, is very exciting. You know everything from aquaculture, to rooftop gardens, to figuring out ways to develop small neighborhood farms in areas, to school gardens, these are all part of the tapestry to figure out ways to not only connect people with food but to develop a more secure system. So when you have disruptions, you are able to get food to local food banks more easily. But I think it again requires coordination. It's not a binary choice; of whether we have big food or small food. We're never gonna get rid of big food, but there's a lot of room for small food to continue to grow and expand and to *interconnect*. And that's the thing. And that's why regional food systems have become so popular in the recent years. Don't just look at the political boundaries but look at the natural region boundaries. We create integrated systems where we can get food from Kern county down into LA in a more expeditious way so that we can feed folks that need to be fed and not just food but really nutritious food. And I think that, ya, local food is a big part and it needs to be an even bigger part of food security.

**P.Mainguay:** (22:17) I think you really raised an important point here, tying that local grassroot aspect of food security to food sovereignty. In the sense that it is really a part of it, and I think the other aspect that is really important here is, of course we're never gonna get rid of big food, and I would argue that we couldn't.

There's also the notion that one can only grow so much at a localized, grassroot level. If we had to produce our own wheat, to produce our own flour, to produce our local breads in the LA area, it's obviously not feasible. So I think there's a good opportunity of striking a great sense of balance that promotes food sovereignty and security in the minds of the people.

I'm wondering, you know, looking at those three sort of groups, players again of non-profit, community based movements. Have you in your experience, since you work globally on such a large scale traveling to asia as i understand, you have probably observed some patterns, helpful or less so helpful ones globally in your experience.

At Community First we look at patterns all the time, because community development is a lot about identifying the pattern of systemic poverty through focus group discussions and what we call participatory rural appraisals, but the idea is to always generate that data through first hand experience, from first hand experience, to see if any patterns emerge and if we can address the problem in a systemic way, at a systemic level.

So my question for you is have you seen any such pattern in your global experience that promotes a food system that is more resilient [and] promotes food sovereignty locally or at a national level?

**Prof. Roberts:** (24:24) I wish I had a more optimistic answer for you. I don't see as many patterns as I would like to. I see bad patterns.

**P.Mainguay:** (24:34) What would those be then?

**Prof. Roberts:** (24:35) Well one is obesity, and diabetes, and other dietary diseases. And what happens is in countries all around the world who adopt a sort of western style approach to consuming food, you end up with really serious health problems. Heavily processed food. Fast food restaurants. It's hard to go anywhere in the world today in getting off an airplane. Within minutes you'll see a fast food restaurant. Whether it's a Kentucky Fried Chicken or McDonalds or whatever. So they're ubiquitous.

(25:14) And you know the one country for example that just... But you know what I'm know seeing, is I'm seeing some level of accountability. I don't know if it's a pattern yet. For example, Mexico just replaced a few years ago the United States as being the most obese country in the world. And it's not because the food you grow in Mexico or produce in Mexico or cook in Mexico makes you heavy. It's because they adopted a more western style of consumption. A lot of small mom and pop shops they buy in, and what was one of the leading causes was soda; sugar sweetened beverages. Mexico instituted a tax on these goods and there was a tremendous amount of push back by large beverage companies. But Mexico has stuck to its guns and what's interesting is that we are seeing that it leads to less and less consumption. If that will lead to less and less dietary issues I don't know yet.

(26:09) So we see countries in South America that are now adopting what we call "frontal pack labeling" rules that really put explicit notices on the front of cereals and beverages that are not good for your diet. Strong warning labels. So we are starting to see a pattern of resistance to western consumption..western products that people consume that lead to all these problems.

(26:39) And the other pattern I noticed is this dichotomy or this debate that goes on about free choice and health issues. The same thing we are seeing right now with masks during covid 19. I should be able to eat whatever I want, and I don't want the government dictating. I don't want the government controlling. That's the same sort of debate we get. So, for example, the food companies target their advertising to people of color and it's very well known. There's a recent report released by the (RED?) center at Duke reports on how this is happening around the world again.

And so the pattern I hope to see, and that we are sort of seeing glimpses of it, is a more assertive government intervention and regulation for public health purposes.

(27:27) Secondly, I think a pattern is starting to emerge with respect to technology. We are seeing innovators, like yourself, with what you're doing, in using technology to help build secure food systems in a small way that can then be replicated and reproduced around the world. I think this is really important. And it's technology not just in the production, but using blockchain, for example, to achieve levels of transparency in something that's talked about. I think it's maybe a little exaggerated in terms of its potential effect, but nevertheless, it's really, really important.

(28:03) And so using innovation and technology to develop regenerative practices in food production. These are climate change predictors in modeling with technology. You know these are really, really

important in ways we haven't tapped into. But again the pattern is starting to emerge, and we are starting to see some glimpses of hope, I think.

Those are two that stand out for me. I'm sure I'm missing some that I'll hit myself over the head later as I think about them.

**P.Mainguay:** (28:40) It is a very thought out answer. Thank you for sharing. I really am grateful for you raising the idea of technology and basically, what sometimes what we like to call at Community First is social innovation. Where you develop not only just a new technology, but a new system that addresses a social issue and better its outcome. And using RND processes, using technology preexisting or not, and finding also inspiration in the wisdom of yesterday. You know, those urban gardens, as the article I shared with you the other day, highlights how urban gardening has been a thing since the 1600s and probably way way way before when cities were walled and under siege. There is very little new.. Just like rebirths. Perpetual rebirths of approaches but true social innovation, I think, that our unprecedented time, very catchy phrase these days, is exactly what it calls for and these sorts of things. So my question is for you, in terms of these players that we talked about, who do you see or what kind of combination thereof do you see coming together and being the type of institution or public resource that would be best qualified to drive those socially innovative processes that addresses those systemic issues?

**Prof. Roberts:** (30:12) Ya, I love that question. I think that in terms of food law, for example, I argue in my treatise I wrote a couple of years ago, that modern law adapts to different changing social conditions. And I think that the purpose of law is to figure out ways to enhance what you're doing to make it easier to accommodate, at the same time protecting the public and protecting the environment. The law is not just the policeman it's also a part of the solution. So, that's one actor. You know, because it's close to my heart and obviously I'm in that world.

(30:51) Other actors, I certainly think as I mentioned earlier are retailers. More in developed countries than developing countries. But what we're starting to see is a cold-chain - temperature controlled supply chain - start to develop in developing countries. Retailers assume a very important role, and that's as you see the evolution of a country, retail seems to be acquiring more and more power. And again the gatekeeper for consumers. And so I think building a system that is responsive to people's needs is really important. And that's one way of doing this. I think they are a very, very important stakeholder.

(31:33) Universities, public universities, are able to engage in studying research. Oftentimes in land grant universities, historically, they have been funded by large ag. Interest. So they're working on things like making biotechnology "better". Which is fine. But what we really need is to figure out distribution channels, we need to figure out how people can actually create sustainable and food security enterprises. That's the sort of the innovation that Universities can help drive. And I think that sort of changing the mindset of Universities, changing that paradigm of sort of a feeder into big ag. Has really, really helped us sort of balance the scales and let's us innovate a lot more.

(32:18) To that end, I really think that an important stakeholder in this that we haven't even discussed, normally that we would sort of just overlook, are investors. Investors have a really important role to play and were starting to see more socially conscious investors. Right? Which connects what you're talking about in terms of social endeavours with business. There are tons of food startups these days, in countries around the world. And figuring out ways to marry investors, people with money, and looking at ways to engage in social engagement with enterprises that help create secure food systems. It's really, really important. Bill Gates has been very much involved in hunger issues, for example. I know a number of investors here in Los Angeles who are very interested in climate change, and innovation in food. And then figuring out ways to set up prototypes, which is what you are doing in your work, is really, really important. And being able together is important. Those are just a few of the stakeholders that I think are important players, especially as we look toward the future.

**P.Mainguy:** (33:35) Thank you for sharing. You know all those stakeholders we talked about. So again those larger three players...

**Prof. Roberts:** (33:57) Can I say one more stakeholder? That I'm thinking about. YOUNG PEOPLE! The way we think about food is generational. And I am so overwhelmed when I teach my class at UCLA, young people are the drivers. They want to think about food differently. I really enjoy listening to older people talking about plant-based substitutes for example, they sort of poo-haw it. But it doesn't matter what they think, because they are not going to be the consumers of the future. It's the young people that really matter. And I am incredibly impressed and overwhelmed at their interests. They're not interested in the politics necessarily, they're interested in the results. And that is a huge change, and I think they are the driver in all of this that we undersell.

**P.Mainguy:** (34:50) Thank you for saying this. It's really great to hear people who embrace the incoming generation instead of making avocado toast jokes, because obviously that's not the change in food habits that we are talking here but much more in terms of the consciousness and what you said I thought that was also very important they are not so much into identifying politics and as looking at the result of what's happening those feedlots, and whatnot, even if they're not vegetarians, if anything.

And so I agree with you, being an early batch millennial, born in 1984, it's always been interesting for me to see how what was once called the Next Greatest Generation became the avocado toast and instagram generation. In a matter of a decade or two. But it is important to recognise that, yes, the power of change is in the hands of the incoming generation, and I do agree with you that there is a great deal of hope in that regard.

In fact, I remember talking about those institutions and players and such, and you had mentioned something that really struck a chord in our last conversation in my mind. Which is that in your experience, you have basically sort of determined that those institutions ultimately will lean or follow the societal narrative; what's being discussed. I thought that was spot on. I have never really thought about it in this way. All of those institutions ultimately, kind of converge together and so therefore if we are thinking about

change making, younger generations, and social innovation and therefore creating is something that is a better social outcome than it currently has. I guess the broader question is, what kind of narrative do we need to pursue? Like what are the important issues that need to be thought of differently, discussed differently, in, you know, the public forum, so that these institutions ultimately lean toward that kind of change making as well.

**Prof. Roberts:** (37:20) Ya. Great question. The older I have gotten the more I realise how important narrative is. Narrative both defines and reflects societal norms. And norms are what we vote on. Norms are what we fight for. Norms are what we even die for. Norms are what we make purchase decisions often times, based off of norms. So norms are really important. And the narrative, we see this unfolding today with the protest movements against Black Lives Matter. It's all about framing the narrative. And why we use the phrase Black Lives Matter? As opposed to All Lives Matter. It matters! There's a nuance there that is really really important.

And so framing the narrative becomes extremely important. Whether it's race issues, or food issues, or health issues. And I start with a very basic question, with respect to the food systems, in terms of the norm. What is food? What do we think of food? If we think of food as a commodity then we are comfortable with this sort of monolithic approach, consolidated approach to food in a sort of a capitalistic system where there are winners and losers. People who can acquire and those who can't acquire. Problem with that is a lot of people don't see food in that way. A lot of people see food as something very different. We see food as cultural. We see food in terms of nutrition. We see food in terms of survival. We see food in terms of sharing with a neighbor or two. We see food in terms of community development; which is what you are doing with your enterprise. Developing a society of community around you. Offering jobs and so on and so forth.

(39:22) So how we view food is really, really important and I remember having a friend once who takes a very strident position on food as a commodity, he's a lawyer, not an academic, and I questioned him at a conference once because I knew he loved to travel to Paris to dine on French food. And so when you talk to him, he sees you as a commodity, but when you start to talk to him about French food he sees it very differently. And so I think almost everyone sees food through a cultural lens.

And I always start my class by asking my students: What is your family recipe? What is your family heritage with respect to food? And I assign them to talk to their grandparents, to come back with food experiences. And we start to see food as something that's different than just a commodity. And so trying to develop a narrative around a shared experience is really, really interesting. And really helpful I think. It's kinda messy, but it's fun. And it helps us to see food very differently. And so I think that's our first step.

(40:28) That's why this food movement about attaching ourselves to food has been so powerful. It's because...And modern technology has wonderful promises as you know. But it also has a way of detaching us from food and from values and from norms. So it's important that we kind of do both as we move along

with technology, making sure we have that attachment, it feeds into the narrative, it feeds into the norm building, but that we also look for the brighter and better future with respect to technology at the same time.

**P.Mainguy:** (41:04) Fascinating answer indeed. I really appreciate it. That whole notion of the narrative governing, at the end of the day, society and cultivating it, nursing it, one way or another was a great revelation. Full of hope, I might add, because it is something that we feel we have control over. I feel that at some point especially today a lot of us in the world feel like we don't necessarily have control over our institutions, even the representative ones at times, and the narrative in the age of information and social media is something that we actually, actively have control over. Especially that new generation.

(41:48) So you know there's hope. That's definitely the take away in this conversation of ours. Things may be dire. The current situation with covid 19 definitely emphasized, highlighted weaknesses in our local and global food supplies, but there are great examples of resilience. Great stories of social, mutual help in neighborhoods and communities. And cultivating that narrative, hopefully, will help shape a different, a new tomorrow for those institutions that will, you know, have science that is driven by the needs of the people at least in some part. I'm all for fundamental research is important but not just investing where a simple economic bottom line is addressed and that goes back to the narrative and what I have observed in the news coverage is a little bit more public health discussion in the news these days. Thank god. But for my liking not enough. But the coverage is that situation we are in the narrative is primarily an economic one, when you think of it. And for some reason is a political one. Which I'm trying to wrap my mind around as to how a public health issue like a pandemic can be politicised. It's a hard realization to come to but basically it does show that the narrative has a great deal of importance in terms of how we govern ourselves and so I look forward to sharing with you our updates and the new series of web documentary series, that we are going to be starting. Connecting people around food, aquaponics, food sovereignty at a very local level, and food security. And we'd love to hear from you again as we pursue that journey. Your insights shared today have been incredibly valuable and will be of great use on that journey of ours. I would like to know now that we have raised and discussed, if there is something you would like to add, some closing thoughts with us and the audience?

**Prof. Roberts:** (44:16) Oh! I've probably shared more thoughts than I should have with your audience. But I'm honored to be here and I admire the work that you are doing with pioneering aquaponics in terms of community development. I think that is great. You should be soluted and it's a great example of what we should be doing. And I'm just honored for you to share this platform with me. So thank you.

**P.Mainguy:** (44:43) Thank you very much.