FOOD SYSTEM RESILIENCE
TRANSCRIPT

Hello and welcome to The Food Fight podcast from EIT Food: a show exploring the biggest challenges in our food system and the innovators dedicated to solving them.

I'm your host, Matt Eastland, and this week we're diving into one of EIT Food's core missions: building true resilience into the food system.

Right now, our global food network is more vulnerable than many people realise. Climate change, political instability, economic shocks, and even shifting consumer expectations all put pressure on an already fragile value chain. When just one link falters, the impact cascades — affecting farmers, businesses, and ultimately, every single one of us who depends on a safe and reliable supply of food.

If we're going to reduce that risk and secure a sustainable future for consumers everywhere, collaboration is essential. We need supply chains that are not only more transparent and innovative, but fundamentally fairer — systems that reward sustainable practices, embrace new technologies, and ensure that resilience is built in from farm to fork rather than patched on as an afterthought.

This idea of building resilience was front and centre at Next Bite 2025 in Brussels earlier this year, where voices from across the food ecosystem came together to challenge assumptions and share bold ideas about how we can turn this ambition into reality.

And the urgency is clear. Climate change has already begun driving down global yields of staple crops like maize, wheat, and soy. More frequent droughts, heatwaves, floods, and extreme weather events are no longer future risks — they're current pressures reshaping global production.

Layer on top of that the geopolitical tensions and trade restrictions we've seen in recent years — including the Russia-Ukraine war — and the vulnerabilities in our food networks become even more exposed. Sudden drops in supply, price spikes, export bans, and heightened volatility ripple through the system, leaving consumers and producers alike to absorb the shock.

[00:04:17] Pete: Um, well, I think. When it comes to large scale centralized food, there are big links that if they do break down are going to have large scale impacts. And we saw that in times like COVID, and we saw that in times like the 2008 financial crisis where there were large scale lengths that were temporarily disabled.

Um, and. They're the kinds of links that I don't think we can afford to be exposed to if we've got a sustained problem arising. Um, because food, you know, you can, you can go for patches of time without food, but you can't go through a sustained denial of large volumes of food. Um, so that's what needs addressing.

That was Pete Russell, CEO of ooooby, An e-commerce platform designed to connect small-scale producers and farmers directly with their customers.

And the way that it needs to be addressed, I believe is by **decentralizing**. Right, and enabling there to be, um, lots, a lot of smaller scale, um, food systems that can interoperate with each other. But to give you an example, like not, not a a, a global shock, but you sometimes we will have farms in the UK that they go through their own shock.

It could be a death of a family member or something like that, and they decide, look, I'm, I'm gonna stop operations. We're just gonna stop for a while. And the customers are like, oh, where's my food? I want my food. And, and what we are able to do is facilitate other neighboring farms to pick up that customer base and continue to supplying.

And so there's like a resilience in there. There's like a redundancy built in. When you've got lots of smaller scale operations, you've got a natural redundancy baked into the supply chain.

Reinforcing our supply chains goes far beyond simply linking producers with consumers. It requires strengthening the very foundations of how food is grown, processed, and circulated. That’s where innovators like Sara Ikonen and her team at NP Harvest come in. They’re pioneering ways to recover essential nutrients — specifically nitrogen and phosphorus — from wastewater, transforming what would otherwise be lost into valuable, renewable fertilisers for farmers. It’s a smart, circular approach that not only reduces waste and environmental impact but also helps safeguard the nutrient supply that modern agriculture depends on.

[00:01:45] sara: Well, um, in, in our minds it's definitely the fact that we are not nutrient self-sufficient. We are actually far from nutrient, self-sufficient. Um, over 80% of countries in the European Union rely on nutrient imports to, to produce food here.

And, uh, then if we look at the main, main suppliers for nitrogen based fertilizers, that's. Russia, 22% of the fertilizers we used on our farmland last year came from Russia. That's a huge number. That's one fifth. And then for phosphorus, of course, we don't have our own phosphate rock reserves in, in eu, practically at all, a bit in Finland.

And that's where we rely heavily on countries like Morocco. So, so in my mind. Quite, quite frightening. We're talking a lot about things like, uh, preparing for, for war and security and

safety, but it's like, uh, we will always need food. And, and in my mind, let's try to at least make sure that we're covering the basic needs because bums are quite secondary.

If we don't have food, then. That can become quite an efficient, um, lever to use against us if really push comes to Shao.

Regulation and policy also play a decisive role in shaping the future of our global food system. This was a key point raised by Olivier Tomat from Genopole — a leading research centre dedicated to genomics and biotechnology — who highlighted how policy frameworks can either accelerate innovation or hold it back.

[00:05:21] Olige: I definitely think it does. I also think that this is a global issue that we need to work on. So if you're taking the biotechnology angle to that, then there was a very nice panel yesterday about the relationship between Europe and uh, Asia and specifically Asian.

Um, this is something we need to work together and I'm absolutely pretty much convinced. I mean, there are a lot of roadblocks that we need to work on. Of course. Um, regulatory ones, but also policy ones, uh, infrastructural. Um, but yes, I, I still think that's that sort of answer the promise of, yes, biotechnology is probably one of the angles we need to work on and we need to work on with everybody, right?

I mean, including the farmers for example. Uh, that's something we need to work all together and with other geographies in order to, yeah, I, I mean technically we know that it'll provide the sort of. You know, to sort of. KPIs we we're after, right. We just need to sort, sort of organize ourselves to push really, and, and I mean investors, you're welcome to participate to that.

Uh, sorry to, to, yeah, yeah. So that's exactly, yeah, I strongly believe that.

Identifying weak links in today’s food supply chains is remarkably challenging, largely because these networks are still highly opaque.

[00:06:29] Pete: Well, I think the biggest, the bigger the scale and the further the distance, the higher the requirement for transparency and tracing and so on.

For two reasons, because there's lots of abstractions, layers of abstraction between the customer buying and the actual production. They need to be able to sort of see through, um, all the way to understand where their food's coming from and is it actually what they wanna buy. The, the second reason is around the scale of impact of something not quite right, like, for example, Steria or something like that.

It, it can affect. Just, you know, thousands, hundreds, tens of thousands, possibly hundreds of thousands of people when it's large scale. When it's small scale, the transparent is transparency is more inherent. You don't need as many tools and systems in place to be able to facilitate the transparency 'cause you're not having to go through so many layers of abstraction.

And so it's just more inherently there. And the second thing is if there is an issue with some food, it's isolated to a small area and to a small number of customers because it's not mass produced, mass distributed. And so it can be, it can be isolated and it can be contained very quickly. Um, and so, yeah, so in general, the bigger it is, the more you've gotta build these systems in.

Uh, and the smaller they are, it's still good to have those systems. And we do though we building those systems, the traceability and so forth, but there's just more trust inherently in there.

The importance of trust within local food networks was something that Martin, one of the YPARD students this year, also picked up on.

[00:12:46] Student 5: Great. Thank you for having me. Uh, my name is Martin. I'm a double degree enrolled student at the Czech University of Life Sciences in Prague and the University of Heim. I Stuttgart. And our project was.

Basically about bridging the gap between what actors at the public institution, like university thinks sustainable food is, and what is actually being offered to us. And we tried to using a different set of methods, uh, incorporated into the procurement contracts. And we were doing this by interviewing the virus actors at the institutions and then coding the answers, trying to love basically the, the institution to incorporate it into the contract.

So the food that we. Eating at the university actually reflects what we think sustainability is.

[00:13:29] Poppy: Cool. Lovely. Great. So consumers, um, when they don't trust the food where food comes from, it undermines the whole food system. So what role does transparency play in resilience and fairness within the food system?

[00:13:45] Student 5: Yeah, thank you for asking this question. What we actually found out in this project was that there's a huge consensus about what sustainability is for all the actors, and the number thing is, number one thing is that sustainability is mainly local for all the people, so the individual. Understanding of sustainability means that the food comes from where we are located.

That means that also **local food shapes our identities in a way because it has a story behind, right? And it also shapes the trust in the institution we're looking at. So if an institution manages to label and. Market the food. It comes from the location where the university or hospital or a senior house is located.**

Um, it helps building trust in the food. It makes the food more sustainable for the actors. And it also probably makes the change that we want to do in the procurement to stick because all the actors that are currently enrolled in the institution think of it as sustainable. It's gonna create a long-lasting change.

The thing is, we need to make it transparent. So if there's a third party operator who is managing, let's say the Menza or university cafeterias, we need to communicate it between the university and uh, the company, which is managing the menza so they can communicate it effectively. If this is not being done and the change is done, um, the consumer won't trust it anymore.

Olivier agrees — and goes even further, emphasizing that public understanding is crucial for driving the kinds of innovations our food system desperately needs.

[00:08:40] Olige: Yeah. I mean, that's the key, right? Uh, so a lot of people just assume that this can't be done because we're talking about cultural stuff, right? So we're, there's no way we can change the culture of eating habits for the consumer, right?

Well, I mean, we probably didn't put as much energy. We should have, we should have done in that particular Department of education and consumer attitude, and we should do more in that. But the first results we've gotten on that is it's not a given. Right? It's all about, and you're right, it's all about education.

So let's talk to people, let's educate them. It's a bit arrogant, but let's give them the opportunity to understand what we're doing to, and I'm sorry to say that, to taste what we're doing and to educate them on. Why we are doing that. That's more like that. And then yeah, I, I mean we should put, yeah, we should put probably a little bit more effort into that.

But I don't want to say that, uh, the game is over. I don't want to say that it won't work because consumers won't accept, accept it, but I don't want to say either. Yes, I mean, it should be obvious for consumers. No, it's not. So we should work on that particular department. You're right. It's absolutely critical.

Sara argued that improving understanding and transparency within the global food system doesn’t just benefit food itself — it helps people see the bigger picture and connect the dots with other pressing global challenges.

[00:03:20] sara: I, I think it's honestly from, from like my, my narrow point of view, it plays actually a huge role because most people don't really realize that currently we are importing fertilizers, which are practically just, uh, a secondary way of importing natural goss.

So there's a lot of talk about, we really need to cut our energy dependency towards countries like Russia. We, we, we kind of. Can't import stuff. The, the general public in, in many countries then, not in some, but in many countries is quite pro. Um, let's try to cut really the energy dependencies, uh, towards these countries.

But what we don't realize is that actually. When we produce fertilizers, we use natural gass both as a feedstock and an energy source. So then if we make a barrier, we don't want to import natural gass from you. The next step is, I'm gonna use the natural gass. I'm gonna produce fertilizers and I'm gonna sell it to you as fertilizers.

And I think this is something where the majority of the public public doesn't know it because there's not this transparency in the supply chain. It's like, where is stuff coming from? But I would say that majority of the public probably also wouldn't think that it's, uh, it's this. Smart, smart thing because practically we're, we're funding oligarchs when we're purchasing these fertilizers at the moment from our largest suppliers.

Krzysztof Klincewicz from the University of Warsaw added that Some stakeholders are frequently not mentioned in these conversations.

[00:06:48] krzysztof 6: Uh, transparency and traceability are, uh, core topics in the industry.

And interestingly, there is one group of players that are sometimes overlooked. Retail chains. So in many countries we've noticed that, uh, food producers themselves would probably not bother about certain requirements if it wasn't for the retailers who would not allow them to enter the shops. So again, it's, it's really important to remember about all of those roles.

And this actually leads me to. Um, a mention of another project that we implement, it's called Infra Booster. The it Foot Infra Booster is a way of, um, helping universities and research institutes to open up the laboratories to use the research equipment for the industry. And interestingly, we, so far there were, I think 29 services designed by such laboratories, and when I recall them.

I think most of those services were somehow linked to quality control, so you could confirm that clearly in different verticals, in different segments of AgriFood system. There are companies that, uh, come to universities or research institutes and specifically ask for ways of supporting them to ensure that this trust component is really met.

We wanted to hear from our guests where they see the current weak points in supply chains, both locally and globally, and what's most vulnerable right now…

[00:08:23] Pete: right? So **on the local level, I think the weak point is density.**

So when you look at a typical farm that's operating as a, a food producer as well as an, a local food aggregator on their farm, and they're using a barn on the farm as like the packing hub, they're packing the food into customer orders, and then they're drop and then they're loading them into their farm vehicle.

It could be a van or something. Then they press go on the app and it tells 'em, okay, this customer's gonna be first and this one's second. And it figures out the optimal order of delivery. But the cost of the delivery depends on the density of the deliveries, right? If you can fit 10 deliveries in an hour, your cost per delivery is way, way lower than if you're fitting in two deliveries per hour.

And I think that's where the challenge is for small scale, is how do we get the density. To be able to reduce that s that, that, that distribution costs a lot. And that largely comes down to just volume of customers engaging, you know, the percentage of households within a certain region that are buying through that channel.

And so we're working on that.

[00:04:56] sara: Yeah, so, so from. Our point of view. The key is that for fertilizer production, for for phosphorus, we should get to recovery fairly fast. We will always need to import some because you either have phosphate rock in your natural soils or you don't. Um, but the way an individual nation can really reduce the amount of dependency is that if they make sure the nutrients recycle and they recover them, because at the moment they import them, they use them in.

Soils, eventually they, they end up in different waste streams and then they're typically, um. Kind of removed by combining them with some sort of metals and then brought to landfills. So then we're all the time taking the phosphorus eventually to landfills, and then we're importing more. If we could recycle them, that would make us a lot more resilient on that side.

And, and then for nitrogen, it's really figuring out ways to produce these fertilizers without the reliance on natural gas. And there are a lot of technologies for green ammonia, for example, that. That's, that's great. Um, I'm saying this is a field where we need every single solution possible, but then also recovery for nitrogen is, is, well, I guess depends on the technology.

You might be able to do a recovery technology that's. Requires natural gass, but at least currently most of, most of the recovery technologies don't require natural gass. So that's a way, um, to kind of in pairing with green ammonia, make sure that we can really, really kind of cut. The fertilizer has a dependence on natural gass tie.

But when it comes to actually addressing these challenges, what key levers can the big players like governments and the private sector really utilise to build resilience within the global food system?

[00:10:01] Pete: I think they need to **embrace small scal**e, and I think that they, it's a really interesting topic because when I first started ube, what I did is I went around and I interviewed a bunch of farmers. Smaller scale farmers and the, what they kept telling me was, well, we used to be able to supply to the wholesalers, but they won't buy from us anymore because we're too small.

The transaction cost is too high. And then I interviewed a wholesaler that, that was buying from all those small farms, and I said, you know, why? What's going on? He said, well, no, we want to buy from them. It's just that it's not affordable. It's, it's not efficient enough. So there's not like, there was a deliberate pushing the small scale farmers out because we don't like them.

It's a, they don't. Comply with the protocols and the systems that we need in order for our system to be efficient enough to operate**. But we are now entering a stage where technology democratize the systems and so forth are way lower cost to build, and it's an opportunity to reintegrate small scale back into the supply chain while keeping the transaction costs low, while keeping the compliance automated.**

Right, and, and I think that there's an unseen opportunity there that we really need to raise awareness, these larger scale retailers and the like, they could be having a shelf or a section of their, of their, their, their retail outlet dedicated to local small scale food. If we can solve the systems transaction cost compliance requirements for those small scale producers to be able to supply to them.

And I think they would be really keen to do that. As long as we can solve that. And so that would be my challenge to them is like, take another look. 'cause 10 years ago it was not a

possible thing to solve. Today it's definitely more possible. So think again and reintegrate small scale back into the food system.

And yes, small scale will pick up market share that way, but if they're involved in that business, it's business for them as well.

[00:06:53] Olige: I think we can't ask for, uh, we, we, we can't ask for government specifically to, uh, believe us just because we say so. Right. So we need to ask them permission to deploy, I would say safe spaces to experiment on that, to try to deliver on the results, uh uh, and then if we allow to do that, right? So, I mean, this is a very technical issue by the way, which is how do you design this safe space or sandbox as you wish to call them?

Uh, then we can give evidence that it's a, it, it's, it's a lead that's worth be been followed. So I'm just asking for that, right? I'm not asking to take what we say for granted. I'm just asking, let us play. Let us show you how it could be done, and then you'll decide. Right? And that's the reason why I'm not always, everybody says, yeah, it's a regulation issue, blah, blah, blah, blah.

It's not a regulation issue, it's a policy issue. Do you want to be part of the, this movement, which by the way, is deployed all over the place, right? In India, in Asia, in China, in the us, and. You want to be part of that. If you want to be part of that, let us show you how it's done and what it can bring to the table.

I'm just asking for that.

[00:08:41] sara: That's a great question. I love to get to answer this.

Uh, I get to call other people to do some actions. Always, always great to give out a wishlist. Well, first of all, um, just from the governmental side, um, making nutrient removal mandatory. Um, making sure it's somehow incentivized. Currently, players are not willing to pay for nutrient recovery for the sake of nutrient recovery.

That's why we, to achieve our mission, we have basically made sure that our system is cheaper to operate than other solutions out there so that we kind of. Within the capitalistic society can force people to have a nice business opportunity, and that's why they would adopt it. But really, like if we want to make a speedy change, then, um, making it, making it mandatory or somehow subsidized, that's of course a way to do it.

Then, um, for, for bigger players, the main thing, especially from the agricultural side, is making sure that they support making a market for recycled nutrients because. Uh, the, the nutrients themselves are good, but what at least we hear when we talk with big players is that we're super interested. But the thing is that, you know, your scale is buckets or IBC containers or one to two containers a week, and, you know, we have such a big need for these nutrients that it's an additional hustle if.

Hassle if we take these small streams, but at the same time then it becomes a chicken and an egg problem, if no one is willing to take the nutrients as the small streams within these like big, serious players, well, of course then we go around it. We try to sell them to local, individual, smaller players, but really like big actors if they would decide that it's.

We will do the additional hassle so that we enable the recycled nutrient market to grow. That's a way that would make things a lot easier and, and just fast, faster to scale. Yeah.

[00:08:48] krzysztof 6: Well, uh, let, let, let's maybe start with governments, because we haven't. Talked about them yet. Um, in most countries in Europe, uh, governments, uh, control sizable budgets that are channeled towards, uh, different types of innovation initiatives, not just AgriFood, but then in European Union, you, you could also combine this with, uh, dedicated funding for agriculture.

And, um, we are talking about enormous pot of money. Which in many cases might not be, um, allocated in optimal ways. Of course, in many countries you have innovation policies, you have formalized smart specialization strategies, but, um, sometimes it takes a while to really discover the commercial potential of local AgriFood sectors and also availability of certain options.

So. Again, uh, within EIT fruit, we attach a lot of importance to also educating governments. We just had a panel with, uh, representatives of governments from several countries talking about this prioritization. So how they could support companies and scientific organizations. In such a way that's there are really impact.

So it's interesting because it seems that, uh, governments themselves, they face very similar problems or they ask the same questions as E 80 T food. So what could be the most impactful type of interventions at the same time, when you think about resilience and, uh, transformation of the AgriFood, uh, sector, uh.

Large players can also play a major role. Um, when it comes to farmers. When it comes to contractors that work for the largest food companies, uh, those companies are, you know,

tangible. Uh, power Source. They could really influence, uh, agricultural practices if they decide to switch to certain, uh, climate friendly solutions.

Uh, this would sort of trickle down the same effect towards, uh, the whole farming industry. So not just government, but large players who, uh, pay for the services or for the agricultural produce have enormous power, and it's really important to maintain dialogue with them.

[00:11:35] **Speaker 5:** That's really interesting. Do you have any, um, examples to like illustrate the point or,

[00:11:41] **krzysztof 6:** I, I, I think when it comes to resilient agriculture, this is, uh, currently, uh, key topic for most of the large food producers.

And again, it's interesting because I, I recall the times of 2000 16, 17, 18, so the beginning of the IT foot when, when you, uh. We're approaching large food producers and talking about climate change, talking about the, um, organic farming and certain, um, carbon neutral practices. They would be surprised. And, um, they would look at you as if you were evangelizing for, um, maybe not very credible cause, but suddenly within several years.

It's just business as usual. It's common practice. Now, it's hard to find a company that is not doing this and to make things even more interesting in, um, certain parts of Europe where people used to think that the agricultural sector was sort of obsolete or more conservative. Nowadays they are flourishing because they, um, they use, um.

Agricultural practices that are not that intensive and now they are heavily demanded by the large food producers.

And what could the food system look like if we do actually manage to implement all of these changes?

[00:12:15] Pete: Well, it's a hybrid. It's a hybrid of a spectrum. All the way from tiny microbe producers at one end to your large mass production at the other end. Um, and, and the average sort of balancing. In that center area, I think, you know, there are definitely problems with mass produced food. No matter how you slice it.

The higher the production volume, the more the food goes through processes, whether it's production processes or distribution processes, which reduce the quality of the actual food itself. Um, so, but, but at the same time, it's mass produced food that get food into areas that

would otherwise not be able to access it, and it just gets calories moving around, which we need.

I think by, by us building more of a hybrid approach and by inviting smaller scale and, and higher nutrient dense food into the, the larger market, it will start to filter along the spectrum, and that creates a much more resilient and also with the scale it needs for us to be able to prosper into the future.

[00:10:42] **Olige:** First of all, it's, I shouldn't say that, but yeah. Uh, okay. First of all, it's an integrated one, right? We can't just say, okay, we are building a European resilient food system. We are building a, a Asian or an American or, so that's the first pain point in there, which is how do we sort of coordinate our efforts and how do we do that?

Um, take on things that are intangibles, right? Uh. I know that Jack Bobo, who, who, who's a guy I, I, I really admire, said yesterday, if we sort of make it up to 2050, then things are gonna get better because the population won't grow more and that kind of stuff, right? So, uh, but there are intangible and the intangible things.

These are a lot of people to feed. So I think yes, net zero emission is, is really a, a, a great goal. We need to pursue elementation. Well, food for everyone is another thing, right? And, and the two are ENT goals. And that's the thing, right? Which is, uh, the new food system that's coming in 2050. Should be sort of addressing these two things.

And that's the reason why we are putting technological innovation there. And that's also, and I insist on that, that's also the reason why we have to bring all stakeholders on board from all countries, right? Because I don't want to be the fantastic European resilient food system. And then see farmers in Southeast Asia just died because they are, okay, so it's.

Should I say, dare I say that? Yeah. It's also about re reimagining reinventing capitalism around food systems. Sorry, that's a bit broad and that's a bit, it's bold and I love it. No, it's, it's there. Yeah. Sure.

[00:11:07] **sara:** Well. In my mind.

Now I'm gonna go a bit on a tangent. I'm so sorry. But if I look 20, 30 years, I'm looking at a world where we have been able to scale nutrient recovery from from waste streams, and we've

gotten to a scale that has allowed us to push the costs down to the level where actually wastewater treatment has become.

Uh, or waste, waste streams have become, um, a source of resources instead of a cost, because today these waste streams occur huge costs. And in, in 20 to 30 years, I hope we're in a state where we actually don't rely on. Legislation telling us we need to treat our waste streams and not pollute our environment.

And this goes now, especially to developing countries where there is no regulation that forces you to treat the waste streams. But rather, we have a lot of parties who have voluntarily started treating their waste streams because they have actually. Re a source of resources so it makes sense to, to treat them.

And that concludes our coverage of Next By 2025 in Brussels. Thank you for tuning into this week's episode. This has been the Food Fight podcast. If you'd like to find out more, then check out the EIT Food website at www.eitfood.eu and join the conversation via the hashtag EITFoodFight on our LinkedIn channel @eitfood. And of course, if you haven't already, please hit the follow button so you never miss an episode.

Matt final episode sign off? Christmas message?

END