**EIT S3 Alt Protein V2.mp3**

**Matt Eastland** [00:00:06] Hello and welcome to The Food Fight podcast from EIT Food, exploring the greatest challenges facing the food system and the innovations and entrepreneurs looking to solve them. I'm Matt Eastland

**Lukxmi Balathasan** [00:00:17] and I'm Lukxmi Balthasan,

**Matt Eastland** [00:00:19] and today we're focussing on alternative proteins, two words we regularly hear together on the show and for anyone who's interested, 24 points on a Scrabble board. But what do Alternative proteins actually mean when it comes to our health?

**Lukxmi Balathasan** [00:00:34] Yeah, the amount of Alternative proteins making their way into market has skyrocketed in recent years. And us it's really exciting. You know, from plant based insect to 3D printed proteins, the options are just getting larger and of course, tastier. But are they really good for us? And are we asking the right question when it comes to Alternative proteins and our health?

**Matt Eastland** [00:00:54] I'd like to welcome Dr Simone Frey, the founder of NUTRITION HUB a food think tank and Europe's largest community for nutrition experts based out of Berlin, NUTRITION HUB supports companies in driving innovation processes in setting sustainable nutrition strategies and in creating marketing campaigns. Simones also an advisor to Farm and Food 4.0 and to the EIT Food to Rising Food Stars Network. Hi Simone, lovely to have you on the show.

**Simone Frey** [00:01:21] Yeah, thank you Matt, for the invitation. It's a pleasure to be here.

**Matt Eastland** [00:01:26] Thank you.

**Lukxmi Balathasan** [00:01:27] Brilliant. And we also are joined by Josephine Quist a medical student at the University of Aarhus based in Denmark, and she's also the founder and CEO of Nutrilution, a company creating protein enriched crum's made from potato waste and go by the name of procrums. Super interesting. Nutrilution is also an alumni of the EIT Food Seed Bed Incubator programme, so it's a real pleasure to have you on the show today Josephine, thank you for joining us.

**Josephine Quist** [00:01:54] Thank you.

**Lukxmi Balathasan** [00:01:55] Brilliant. Great to have you both.

**Matt Eastland** [00:01:57] Ok, so Lukxmi and I were actually talking about where the term Alternative proteins actually came from. So we've had lots of different people on the show talking about Alternative protein start-ups and products and services. But we kind of just got to thinking so, you know, where does it come from and why alternative? Why does Alternative proteins have to be called alternative? So before we actually go into what both of you do, could we just quickly talk about what an alternative protein product is and how it differs from, for example, meat? And should it be even called Alternative proteins? Simone id be interested to get your thoughts?

**Simone Frey** [00:02:37] Well, first of all, what are proteins in general? They belong to the group of micronutrients which humans consume in relatively large quantities compared to vitamins and minerals and which provide us humans with energy. And yeah, in the past, there were two types of - ahah the past, I mean up to now - there are two types of protein sources. One is animal derived and the other one is plant derived. And now with the world's population predicted to exceed nine billion or maybe ten billion by 2050, we need or there's a projected increase in the demand for protein. And this is where various experts and professionals came up with the term Alternative proteins sources to animal derived proteins.

**Matt Eastland** [00:03:37] And do you think it makes Alternative proteins - again, Lukxmi and I were just talking before the show - do you think it makes it sound authentic? Does it make people fear like a protein? If it's alternative? And again, it's just just something we are throwing around. But I mean, Josephine, what do you think? Is this the right term for this?

**Josephine Quist** [00:03:55] I think is a bit misguided, actually, because, you know, plant protein has been a part of the human, you can say food map for such a long time. It's not something new. If you like, look away from the fact that, like with the grass protein and with the insect protein, now we are moving out to a more alternative route. But to say plant based protein is alternative, that's I don't think it's true. But it's true what Simone, says we need more protein sources to cover the need for humans. For me, as a professional health professional, I don't see the proteins as animal based or plant based protein. Actually, I see it as do the protein provide enough essential need for the human being. So if it does, then it's like great. So alternative, maybe not so much.

**Simone Frey** [00:04:46] I think Josephine also adding to this is that it mainly came from the market, the start-ups and the industry from the term Alternative proteins products, so it's more from the food itself than from science. So I'm a nutrition scientist, that's my background. And as I said before, there are plant proteins and their animal derived proteins. But if you think about new products, alternatives to products we've had in our diets the last centuries, then the term alternative, I think is a good term is fine. But just the term Alternative proteins is, as Josephine said, a bit misleading.

**Lukxmi Balathasan** [00:05:37] It's almost like it should be alternative sources of protein. It's not an alternative protein because a protein is a protein. If I remember my undergrad biochemistry correctly, but yeah. So Simone, so what is your link with Alternative proteins? What does Alternative proteins have to do with your work at NUTRITION HUB?

**Simone Frey** [00:05:55] Well, NUTRITION HUB is, as you said, a think tank and community for nutrition experts. And what we do is on the one hand, we work with companies, with the innovation departments on innovation strategies, but on the other hand, with the marketing departments, for example, when it comes to marketing strategies for these new products, this is what we do on the one hand. On the other hand, we also publish reports. Our famous report is our Nutrition Trend Report. For this report, we select nutrition experts from our community and we ask them about nutrition trends they observe in their work. The last one was published in January this year. So it's every January we select 10 nutrition trends. Number one this year was plant based and vegan nutrition. Number two was personalised nutrition and number three was sustainable and climate neutral nutrition. And from these tools are working with the companies on innovation strategies and marketing these new products and our own reports. This is my connection to Alternative proteins and alternative protein new products.

**Lukxmi Balathasan** [00:07:15] Brilliant. Thank you. And what about you, Josephine? You've have a really interesting career, history and background. So tell us a little bit about how you got into the plant based protein products industry.

**Josephine Quist** [00:07:28] Well, if you have said or if you have told me that three years ago that I would be in this kind of industry and trying to promote something Alternative proteins or plant protein, I would be like what no. As a medical student, you have your world in the hospital world. And I just stumbled upon how many patients like I was to take care of the patients and this includes what they ate. And to see you plate after plate after plate with potato mash just thrown out or in gravy and then if that didn't work, then they would have to drink a yogurt. And I was like, well, this cannot be like you need proper fuel for the body to heal so why is it that we don't have other solutions? So and this was my beginning in the journey of the entrepreneur thought, because even though I am a research assistant at the Hepatology and Gastroenterology Department, science take years, decades. And for me to do something where I...because it's like this, it's not a quick fix. But what I ended up doing was actually creating a protein enrichment. There are so much protein and enrichment in the form of animal based protein. So I was what could I do differently than what was done before? And then I stumbled upon the potato waste firm here in Denmark and they were claiming that this was a quality plant based protein, that this was actually something that could cover the need. And I was like, this is amazing, how can we use it? And when it got it in my hand, I was like this grey powder that didn't taste very good and I was like, well, this it's not going to work. You have such a low appetite as a sick person so to force them eat something that it's like almost to eat dirt almost, it was like, no, this it's not going to work. So I began collaborating with different technological institute here in Denmark and I went out and testing in nursing homes and hospitals and worked with the kitchens for the hospitals to how can we protein enrich food with plant based protein, which gets quality and still have actually a proper taste, a delicious apple cake or something like that. So this is why we are promoting procrums right now and why Nutrilution actually like started.

**Matt Eastland** [00:09:52] That's amazing. What a need that you've spotted. And can I just clear up so you obviously saw the need because there was lots of potato waste, but you're enriching the potato with protein or you're somehow managing to extract protein for what is essentially a carb. It's an enrichment, is it?

**Josephine Quist** [00:10:08] Yeah. The thing is, a potato is 99 percent carbs. So there is one percent protein. But if that protein that was beforehand thrown out or given to the pigs, the company found a solution to actually extract the protein. And what we do in Nutrilution is actually we take this excess of protein and put it in a food matrix to provide it, to give an ingredient kind of feeling to it. And then we work it in the hospital, nursing and care home facilities.

**Matt Eastland** [00:10:39] Amazing.

**Lukxmi Balathasan** [00:10:39] Oh, wow, that's amazing.

**Matt Eastland** [00:10:40] Why don't we talk about the quality then and get into the topic of health. So, I mean, you've already started to pick this up, I think, between the both of you. But so I'm assuming, therefore, that not all proteins are the same in terms of nutritional value. So in the Alternative proteins space, are there ones that you kind of rank higher? It sounds like there is a scale here on plant based proteins that you're going to say, well, this one is actually high quality. This one maybe not quite as high. Is that is that fair? Simone what do you think?

**Simone Frey** [00:11:12] Well, yes, there is a scale, there is a ranking, and we have to add to this ranking, the ranking is the biological value. And there is a ranking because, yes, research has been able to identify which amino acids are in which source of food. And now when we speak about this ranking, we are speaking or it refers to the. To the natural form of that food, so we speak about potato, it's an egg, it's a piece of meat, it's not a processed food. This is not applying to alternative protein products that are on the market. In general to make this short, animal derived proteins have an average biological value of 80 percent. So it's a higher value than the plant based proteins, which have an average of 70 percent. And what is important in a diet to eat healthy is to combine the protein sources with each other to increase their biological value. For example, potato and an egg has the highest biological value of one hundred twenty or thirty or something. But nevertheless, there are still ongoing myths that a vegan diet, which does only contain plant based proteins, cannot cover the protein needs we have. But this is a myth. So science was able to show that this is not valid anymore and that it is the other way round, that if we eat too much animal derived proteins, that this can actually harm our health, can lead to cancer or increase the risk for cancer, for type two diabetes or has is affecting our asset base metabolism, homeostasis.

**Matt Eastland** [00:13:19] I think the interesting thing here is the fact that we hear this debate, particularly from consumers all the time, everyone says seems to say, yeah, but if you follow a vegan diet or a plant based diet, you're never going to get the protein that you need because meat is better for you. And that's what we hear all the time. So it's actually really nice just to have people come on was like, no, actually, scientifically, that's not the case, which is super useful. And Josephine, I see you kind of nodding along as we've been talking about this. I suppose you agree with all this?

**Josephine Quist** [00:13:50] Yeah, I do. I think the thing about to say that you cannot cover your needs from a protein, from a plant that's not true. I always explained like this, if you have a bucket and you want to fill it with water, if you have a hole in the bottom of the bucket, like if you are not covering a certain amino acids, like one of the building blocks and the protein difference, if you don't have this, then there would be a hole in the bottom of the bucket. And then even like if you just fill up the more water, then you will not fill the bucket up because it would just go out the hole. To say that meat maybe gives higher mortality or give cancer so on, it's such a complex because if you if you eat a steak, then probably maybe you would also have a glass of wine right? Or you would even take a cigarette in the part of the evening. So are we to say that it was the meat that give you cancer or was it the cigarettes or was it the wine? I will go along with the thing that the plants I know there is some research that the plants give some more vitamins and minerals, like the people covered that basis more. And maybe that's giving the health benefits of a plant based diet. Like, I think the overall belief, from my point of view is that a protein is a protein, but it's like the bioavailability and then that you have fulfilled your needs, like you fill the bucket, then it doesn't like then there are no different.

**Lukxmi Balathasan** [00:15:21] And I guess two terms that it would be interesting for both of you to unpicks as I know your experts. So we talk about biological value and bioavailability. So layman's terms, what do they mean?

**Josephine Quist** [00:15:33] It means like do we go over the gut wall, so high bioavailability. It's my understanding that it go over the wall and the cells can actually take up the nutrients.

**Lukxmi Balathasan** [00:15:45] Right ok. So it's actually like, it's actually is incorporated into sort of your physical healthy being instead of being just excreted away.

**Josephine Quist** [00:15:54] So if you have the high, like if you just have something, a source that have 100 percent protein, if you can only absorb availabilities only 10 percent, then then you only have 10 percent of like proteins in you so.

**Lukxmi Balathasan** [00:16:07] Got it, right. So even if you see on a package like my protein bars that says 30 grams, I might not actually be getting all of that 30 grams.

**Josephine Quist** [00:16:15] No.

**Lukxmi Balathasan** [00:16:15] Ok, that's really interesting to know. And Simone, biological value?

**Simone Frey** [00:16:20] So first step is we eat the food, enters the mouth, the stomach and then the intestine, and it's not like hundred percent of the food is incorporated into our body. That's bioavailability. It's only a certain percentage. And now, once it is in our body, the amino acids at this time, only a certain percentage can be used for building muscles, being part of an enzymes or used in the body. It's only a certain percentage. So 100 percent is every amino acid in the protein that is taken up through the intestine is put into a structure in our body. But this is not the case for any food alone. It's on average 80 percent for animal proteins and 70 percent for plant proteins.

**Matt Eastland** [00:17:17] Got it.

**Simone Frey** [00:17:17] That's the quality of protein. So, Josephine, do you know what is a very low quality protein source?

**Josephine Quist** [00:17:27] Wheat or something like that, right? Wheat.

**Simone Frey** [00:17:29] Yeah

**Lukxmi Balathasan** [00:17:31] yeah, wheat protein,

**Matt Eastland** [00:17:33] Ok, so wheat protein is low bioavailability?

**Simone Frey** [00:17:36] And at the same time very important if you follow a vegan diet to combine it, for example, with legumes and other... it's complicated, but we try to make it simple!

**Matt Eastland** [00:17:47] Well this is why we're talking about it, which is super useful because actually again, most people think, ok, if I have this protein, that I'm getting enough protein. But what you're actually saying is it's not really about that. It's about the way that you combine what you're eating to make sure that you're then getting the nutrients you need from, for example, Alternative proteins, which I think, again, is super useful and not something I think people necessarily know about. So that's that's amazing.

**Lukxmi Balathasan** [00:18:15] Yeah I agree.

**Matt Eastland** [00:18:15] And you were talking before about, you were saying, ok well, this is just the protein we're talking about, we're not talking about it as a product. But I was wondering if we could talk about alternative protein products in terms of their health benefits or not. So, I mean, we know that there are a whole variety of variations in processing methods. So you take your kind of raw protein, you process it, you add salt, you add fat. How as a consumer do we know that an alternative protein product is good for us? And is there anything we should be looking out for? Josephine, what do you think?

**Lukxmi Balathasan** [00:18:54] Yeah, how do you decide, because I know you're really big into health and fitness?

**Josephine Quist** [00:19:00] Yeah.

**Matt Eastland** [00:19:03] Would you just go raw protein?

**Josephine Quist** [00:19:06] No raw protein, I'm a student also. So I said something about this. You can be promised a lot like there are so many products who promise you the world that they have the best protein, like the best protein, that this is the highest bioavailability, that this is... what I think is important for you as a consumer is to find protein sources that works for you. So if you love beans, legumes, if you love like getting your protein from the Indian food or something like that, then do that and don't get caught up in the argument that this is better than this. Like, just. What works for you is generally the thing I think is best. As a medical professional I would say, please do make sure to have some kind of vegetables and fruits in your diet. Like if you have a protein source and if you want to eat more plant based and get it from different sources and have some vegetables, have some fruits and cover your needs in that way, and then don't worry about like two percent better like bioavailability, that wouldn't be like beneficial for no one.

**Lukxmi Balathasan** [00:20:20] Yeah. So a diversity of protein sources in your products is super helpful. Thank you for that.

**Josephine Quist** [00:20:26] And don't fall for the thing like this is better than this. It's not that simple.

**Lukxmi Balathasan** [00:20:31] Yeah. Unless someone's created some sort of new amino acid that we don't know about incorporated into a protein. You're right. Yeah we had the basic building blocks yep. And what about you Simone? What do you think? Do you think there's a specific product or source of Alternative proteins currentlyt right now thats better than the status quo meat?

**Simone Frey** [00:20:55] Ooh better than the status quo. So first of all, yeah, let's start with a product and an alternative that has been in the market for a long time, and that's milk and plant based alternatives, which, by the way, in Germany, they cannot be called milk anymore. So I'm not sure if that's all over Europe, the same thing.

**Josephine Quist** [00:21:20] We have in Denmark too.

**Simone Frey** [00:21:21] Yeah. So in Germany, they are called a plant drink. Made from elements, for example, so if you think about milk from cows, it's a quite simple product because it's always the same. It has the same amount of protein, same amount of fat, maybe low fat, but it's a standardised product and it is the same all the time. That means it is also easy to put it into the official recommendations for a population, the dietary recommendations. And this is why milk, for example, the German Nutrition Society, gives recommendations about milk and how much we are able or we should consume. Now, when you think about plant based alternatives, we have a drink made from Almonds. We have a drink made from oats. We have now start-ups like fly foods with a drink made from peas. So there are various sources and this product category itself is very different. And they all follow or would like to follow the clean label movement. So to have a very, very simple ingredient list because the raw materials are so different, so are the end products as well. And that means if you compare them and you would like or scientists would like to put them into the official recommendations, but as this category is so different, you cannot say drink a glass of milk, but you can also use a glass of an oat drink or an almond drink because they are not comparable. So, again, I would go back or I would like to go back. I think the term plant based, a plant based diet is a very, very good one. I think this is the term tells everything its plant based. It doesn't mean eating a plate of pasta with a little bit of tomato sauce. It's fine. You can eat that as well, but it means plant based thinking about in the morning, for lunch, for evening, the basis the core of my plate should be from plants, from legumes, from nuts, from vegetables. And it also doesn't mean eating a salad of green lettuce where you feel like afterwards, I'm still hungry. This is not plant based. So coming back to your question, there is not one product that is the healthiest. It is, again, about plants at the core variety of different plants on the plate and adding other food products, adding an oat drink. That's fine. But this is how I see that.

**Matt Eastland** [00:24:19] Yeah, I love that. So it's kind of what you're saying is it sort of goes beyond just the label of something like Alternative protein. You're saying that we should focus on plant based. That actually makes it easier to understand and it gives people a broader view of what they should be eating. It doesn't mean that you get people just focussing on I must eat this, I must eat that. It allows you to have this breadth of beautiful foods, which is which is a really good message I think. Josephine I know that you're big into your health and fitness. And I was wondering, do you find any, like, benefits from focussing more on, like Alternative proteins or plant based diet versus, you know, like conventional protein? Do you get any more from this? Do you find it makes you feel better or is your performance better? Do you find there are benefits from from your side?

**Josephine Quist** [00:25:09] I say I'm fortunate that I have been and actually in this community because it means that I have access to protein sources that I didn't even know existed before hand. I have access to potato protein, I have access to different like seaweed protein or something like that. But I will not lie in matter of, I think it's that it has been tricky to incorporate in the diet because it's such it's a new thing. So how can I incorporated it in my diet? But what I found helped me a lot was actually to focus on having the plant based diet as Simone, like mentioned. That for me as a body builder, I quote 'body builder', that if I supplied my diet with a lot of fruits and so and so on and plants, then I was more filled like in my... I felt satisfied than if I just ate pasta or carbs or bread or something like that. So that helped me a lot. But. And I had a lot of eggs I would say, also excellent but then a lot of yeah, broccoli and so on, so on, I wouldn't recommend like broccoli and chicken its yeah - it's more exciting to have some alternative plant based protein sources.

**Lukxmi Balathasan** [00:26:28] I mean, both things. You know, you talked about, you know, eating a natural source right? Just eating the eggs. And Simone talked about having a plate of vegetables and being sensible about your diet. But we're seeing a growth of these alternative protein products, such as the Beyond Burgers. You know, they're marketed as vegan products. They're made of plants. But we're also hearing a lot and they're really being marketed on the sustainability factor right? When we think about these Alternative proteins, we always talk about sustainability. And the one thing that always comes to me is no one's really talking about the health of these products. So these products are good for the planet, but are they good for people's health?

**Simone Frey** [00:27:11] Yeah, well, I don't think so, but it is true, it started with the sustainability factor and we also actually carried out an event last year called Alternative proteins radically change our diets but are they actually nutritious? And we discussed exactly about this. So now if you think about markets, innovations and how they develop and mature, this is how it started from this perspective of animal welfare sustainability. But the fact of being aware about the nutrition nutrients in these foods, no one is yet concerned or talking about it, but it will come. These products entered the market and for sure they will not go away. And as soon as so... Many scientists or many scientific organisations are actually working on incorporating them into the official guidelines, dietary guidelines, once this is done, it's also much more transparent for consumers to know is the oatmeal or the almond milk, is it on top of the food pyramid? Is it something I should consume? Not a lot, or is it comparable to a glass of milk? Same with the burger patty. Is a burger patty from beyond meat or others - they start to do these comparisons - but can I compare this from a nutritional point of view to a piece of meat? And once it is incorporated in the official guidelines, it will make the market more transparent. It will help consumers to know what they get, and it will also boost the market for these products. So another interesting fact. We, for example, observed in our nutrition trend report was that those experts who work as nutrition therapists or run their own nutrition consultation, they observe more and more people asking them, I want to change my diet, I want to eat more plant based, I want to eat more vegan. But I am afraid at the same time that I may have a deficiency and I need your support. I am also not confident which milk for... Which alternative plant drink I should choose. And as long as or let's say, let's say positively, which I believe is the next phase, as soon as we make this more transparent and consumers know what they get and they know how to compare this drink, this vegan egg product, this burger patty, as soon as they know how to compare and where they fit into official guidelines, the market is more transparent. We know better what is healthy and what is less healthy. But this is not the case, it will come in the next years, it will take some time to do the studies about that.

**Lukxmi Balathasan** [00:30:40] Yeah, and I guess consumers are becoming more and more aware about what Alternative proteins mean and like you said, people asking the questions, right? Like is this, what's equivalent to my daily consumption of milk? And so, Josephine, like, you know, it's really interesting that you were saying that you became an accidental entrepreneur and being a doctor, you saw the need of healthy diets for your patients and Alternative proteins playing a role. So is this something that you did on your own or like Simone was saying? Is this do you kind of see the health care profession and becoming aware of these different protein sources and being able to advise? Or is that really a job for the nutritionists like Simone?

**Josephine Quist** [00:31:21] Unfortunately, in any system, there is a downsizing of dietitians in the hospital setting. And this is such a shame, actually, because there are more and more research that if you are malnourished when you come into hospital, you are admitted twice as much. You have a higher mortality rate. This and this and this. What I was so baffled about was when I presented like, this patient isn't eating, what can I offer them? And I was just stuck this drink in my hand, like the drinking yogurt and they were like, give them this and then when you try to give it to the patient or the elderly or whoever I came upon, they were like, oh, it doesn't taste that good and can we please not? And so they tried... Like it's a very experimental phase right now in the care setting that they tried to supply the meals with plant based options. And they're trying to make meal plans where it's only from like plant based. But the thing is and what is so interesting, they can get it up to the level they need to actually with the product they have in hand, they can sufficiently give the protein need to the patients with the product they have at hand. So I think it's necessary if we want to have this as a more like, environmentally friendly, setting that we need these kind of products. We need this kind of alternative, because if you have it in your like and the thing like for healthy people, like eating a whole plate of food, it's enjoyable. It's easy, it's nice. You want to have that whole plate of like a mountain of food. But when you're sick or when you're elderly, like, it's just too much. So for me to work in this kind of space, I'm very I'm looking for protein alternatives, then I think it's the right time to use it because we need this kind of products to be sufficient. If the people and I can say even with animal based product, it's a problem, they don't get enough protein. So if we want to do it with plant based product, then it's really like we need more solutions, which is why I'm in the game, because I want to, you know, give this.

**Lukxmi Balathasan** [00:33:36] You're leading the way. Definitely. So definitely watch the space. You know, we talked a lot about plant based proteins when it comes to plant based, meat based. Most of us get it. We've all consumed meat and or most of us have consumed meat and vegetables, hopefully in our lifetime and we get the taste. So coming on to the health aspect, moving on to the taste. There are other sorts of Alternative proteins that we're not familiar with. So insects and algae and even lab grown meats are becoming more trendy, alternative meat products. And, you know, taste has been a big driver in the new adoption of these protein alternatives. So Simone, based on your experience, where do you see the space going on these? What's the word like wacky alternative sources of protein such as insects and algae and lab grown meat? Do you think this is a trend that's going to be widely adopted anytime soon?

**Simone Frey** [00:34:35] There are studies out there and these studies investigated consumer preferences. And one thing is clear. Plant based protein sources are the most accepted. That's the first thing. So second about insects or algae this depends on certain regions or you've been growing up in Asia, then it's - you're used to eat algae in other places in Asia and Africa you're used to eat insects. So for me personally, I really I try to try these products of start-ups with insect products, but I was not yet able to try them. So I'm one of these consumers who's really struggling with... yeah eating it. And at the same time, in my mind, it's like, oh my God, this is what I'm eating, which is weird, but this is like how I grew up in here in Germany. I think the especially for insects, for example, there's a big market for pet food, for example. So the various start ups using insects, meal worms for pet food. And I think that is amazing and that's great. And that works as well. And yeah, keeps me out of the loop there.

**Matt Eastland** [00:36:14] I've actually had one of our start-ups burgers made from insects, actually quite tasty, I'm surprised. So I've been on the receiving end of that. And what do you think the industry should do to kind of drive adoption? Do you think they should be really pushing on the sustainability benefits, the health benefits, or what is it the industry can do more to kind of encourage more and more people to be adopting alternative proteins? Josephine, what do you think?

**Josephine Quist** [00:36:38] I agree with Simone. I think the culture is where it all starts. I have been approached for the Start-Up with the insects and for me, I don't have a problem actually eating it. And I think it's a fun taste. But whenever I try to present it, for example, the kitchen staff, they are very much like, no, no, no, we couldn't. No, no. You have it in this product. We cannot. It's it's a bit sad to see how much appalled they are because it's but again, it's their generation and like they didn't eat insects. They haven't like the history with it. Maybe in the future, if it's like marketed right, or maybe in the party, that could help. I know the target group was 20, 30 year old men. That was like, oh, yeah, of course you can eat this and so on. So let's see maybe of, you know, more about the groups that would eat it, but maybe when they grow up and they have the option that they also when the price maybe goes a bit down. Right now it's quite expensive that maybe we can see a movement towards actually using insects. As it is right now I think it's a very, very, very hard pitch.

**Matt Eastland** [00:37:55] And do you think as well within this space that technology is going to be playing a big role? We see a lot about like 3D food printing. And Josephine, I was just wondering, given your research and the sort of patients that you're dealing with, I'm wondering, can you see a time when you will 3D print, let's just say a burger, for example, which is got all the right ingredients in it, including Alternative proteins, which is tasty, which is delicious, which is, you know, accessible to that particular patient. Can you see that playing a role in the future?

**Josephine Quist** [00:38:26] I know it's that it's on the way they are actually doing research on this and they have machines for it. What I question is if they can afford it, that's the thing, because it's not the same in all of Europe. But in Denmark you have the government supporting the hospital. So can we afford it? I hope so, I think it would make patient care so much easier if you can actually apply the specific tastes and the nutrition requirement for that patient. That would be the dream.

**Matt Eastland** [00:38:58] Yeah, I guess that the price of tech has to come down quite a lot right?

**Josephine Quist** [00:39:02] At least for the Danish hospitals ahaha

**Lukxmi Balathasan** [00:39:04] and also the price of Alternative proteins. I think you make a really good point.

**Josephine Quist** [00:39:08] That's the thing. Yeah, right. And like the price of the nutrients, again, like for the insects, I have been approached. I have been company trying to pitch me, oh, can you use this in some kind of way. Then I went to the customer and they were like, no, we don't want anything to do with it. But even if I wanted to do something, then the price of the raw material would be so expensive that I couldn't make any kind of business out of it because it would take all the, you can say profits. But sometimes it's not about what makes profits. So if you have, for example, I think the whole environmental game is not for profits right? So maybe someday.

**Matt Eastland** [00:39:47] So with Alternative proteins, we've got an nail price, we've got to nail taste and we've got to nail sustainability. And I guess accessability as well as, you know, all of those things together, which is not easy. We're coming to the end of the show now. And it would be really nice to wrap up with a few final questions. Just a big one. Looking forward, do you ever see a time when we'll only be eating Alternative proteins, or do you think that there will always be a space in here for for meat based products as an example? Simone what do you think?

**Simone Frey** [00:40:16] Well, there's a very nice report from ING Bank on dairy and meat alternatives, and they calculated the market share until 2050 and still in 2050, we are not yet 100 percent eating Alternative proteins and products from these proteins. I think it will change and is driven by sustainability and health and maybe it will change faster than this bank calculated in their report. But it's going to change, I don't believe, 100 percent, but I believe that animal derived products will their perception in the society will be a different one than it is now. And it has been for the last decades. For the last decades, until now. Meat and fish is a luxury and it's not a luxury product. But you use it if you if there is a celebration and there's a birthday, there's a party that's something many cannot imagine that you would do something without these products.

**Matt Eastland** [00:41:34] Mind shift.

**Simone Frey** [00:41:34] And I think this this is going to change.

**Lukxmi Balathasan** [00:41:38] It's interesting.

**Matt Eastland** [00:41:38] Thank you. And Josephine, do you agree?

**Josephine Quist** [00:41:40] I think I hope actually that we will not go to an only one hundred plant based not because I don't think it's... The thing is before hand if you ask 50 years ago, would you instead of this red meat, would you like to have some legumes instead? And they would be no, no, we can't do that. No, no, no. We have to have meat. I think it's a dangerous road to go down a path where I would say this is the only thing right. I definitely think we should be more about the plant-based diet I definitely think this is should be the majority of a diet because research says so, like it should be. But to say 100 percent plant based, I have a hard time seeing how this could be possible but maybe.

**Lukxmi Balathasan** [00:42:28] Hmm. We'll see. We'll see. And finally, before we go, just a quick one. What's your favourite source of protein, Josephine?

**Josephine Quist** [00:42:37] I actually think milk I think milk is so great. Like, I love it. I think it's. Yeah, I enjoy it so much.

**Lukxmi Balathasan** [00:42:44] Thanks. And you Simone?

**Simone Frey** [00:42:46] chickpeas, I think they are they are great.

**Matt Eastland** [00:42:52] Big fan.

**Simone Frey** [00:42:52] They're great in a salad. They're great with pasta. They're great as a soup. But actually any kind of beans mashed not mashed in salads. I love them.

**Lukxmi Balathasan** [00:43:01] Ah yeah

**Josephine Quist** [00:43:02] I know I should have said potato ahahah.

**Matt Eastland** [00:43:04] This was your moment Josephine!

**Josephine Quist** [00:43:09] We are still waiting on the product. Like it's not like, we are almost there, but we still have some work to do on the taste.

**Matt Eastland** [00:43:15] Of course. We'll get there.

**Lukxmi Balathasan** [00:43:16] I'll be looking at for potato milks soon.

**Simone Frey** [00:43:20] One more thing to add, which I found really, really interesting. I was just recently at the airport and I was charging my phone and next to me, two very young men were like nineteen twenty stood next to me and they were also charging the phone and speaking this and that. And then one said to the other, oh, I'm so much looking forward when I'm back home to eat healthy. And I heard this and I'm like, yeah, actually me as well. And then we started to talk to each other and both of them were German, highly successful TikTok influencers, and it was quite fun to have this conversation. And it's exactly, you know, when we speak about this transformation and what's happening here, then this is the generation that will drive this change. And I was so surprised about this health - I want to eat healthy by a 19, 20 year old young man.

**Matt Eastland** [00:44:17] I love that. Big up the next generations

**Lukxmi Balathasan** [00:44:19] I hope for the future that it does. I agree. They will be definitely driving this healthy and sustainable food future.

**Matt Eastland** [00:44:26] Yeah. So both thank you so much. I mean, it's been a pleasure chatting today. I mean, amazing topic. And, you know, you've both shown so much expertise and I've learnt so much from this episode, which is great. Always love that. So what's the next big thing you are focussing on in each of your companies so that the listeners can find out more? Josephine?

**Josephine Quist** [00:44:46] Right now we are experimental again. I have the patients near to my heart and a lot of the patients and elderly have chewing disability. They can't chew food. So what we are working on is making the crums and also making some crackers and maybe even some chips like puffs, we are calling them. But to the kind of people who have a hard time chewing. But again, plant based, protein rich, delicious, very keen on the delicious part actually, I think it should be a joy to eat.

**Lukxmi Balathasan** [00:45:22] That's going to be incredible if that's like taken up as a staple hospitals day diet. That sounds amazing. And you Simone?

**Simone Frey** [00:45:32] Yeah, well, what do we want or what our mission is. We are fascinated about nutrition and its effects. And we know we have all this data. We know that poor diet is a factor and one in five deaths. We know that if we eat healthy, we can live longer for around ten years, every one of us. And there's so much data and still we often eat so unhealthy and people don't know about this. So what we want as a think tank, as a community, we want to become the organisations where companies can actually transform into this future, where journalists approach us, which they already do, and they can have insights from experts and also politicians and working with political organisations. So we want this data which is there, that it finally is applied and we make this decade until twenty-thirty what it should be, it should be the transformative decade. So nine years to go for the global goals, though. This is what we want to do.

**Lukxmi Balathasan** [00:46:43] Wow. Super ambitious. I love it.

**Lukxmi Balathasan** [00:46:45] Yeah. Very, very worthy. And you know, we wish you both the most success in the world because it's incredible what you're both doing. So congratulations. And where can listeners go for more information about you and your companies

**Simone Frey** [00:46:59] on our website nutrition-hub.com or dot ee.

**Matt Eastland** [00:47:06] Thank you. Josephine?

**Josephine Quist** [00:47:07] nutrilution.eu would be the best place to go. Search for knowledge.

**Matt Eastland** [00:47:14] Perfect.

**Lukxmi Balathasan** [00:47:14] Brilliant. Thank you both.

**Matt Eastland** [00:47:16] Thank you both so much. I really enjoyed listening to all of your views. I just like to say, Josephine, thank you very much to you.

**Josephine Quist** [00:47:23] You're welcome. I enjoyed it.

**Lukxmi Balathasan** [00:47:26] Great stuff. And Simone big thanks to you, too.

**Simone Frey** [00:47:28] Thank you very much.

**Lukxmi Balathasan** [00:47:31] This has been The Food Fight podcast as ever. If you'd like to find out more, head over to the EIT Food website at www.eitfood.eu and join the conversation via #EITFoodFight on our Twitter channel @EITFood. And if you haven't already, please hit the follow button so that you never miss an episode. That's it for now. Thanks for listening, everyone.