Tackling root issues in vertical farming.mp3

Matt Eastland [00:00:06] Welcome to this bonus episode of the Food Fight podcast from EIT Food. In these episodes, we break down the food system for you, unpacking the ideas that create positive change. We'll be hearing from industry experts as they share new concepts and innovations, teaching you everything you need to know about a topic. Without further ado, let's get into this.

Vasileios Tsormpatzoudis [00:00:33] Hi, I'm Vasileios Tsormpatzoudis. I'm the CEO of HAI TECH.

Andrea Izquierdo [00:00:37] Hi. I'm Andrea Izquierdo the CEO of HAI TECH.

Diego Corona [00:00:41] And I'm Diego Corona and the city of HAI TECH. And today we'll be learning about how we can optimise operations in magical far means to bring monitoring.

Speaker 3: [00:00:38] Andrea Izquierdo [00:00:39][1.1] [00:00:54] So vertical farming, explaining in a really easy way is stacking trees of plants. These are mainly plants that we can eat like greens and microgreens, and they're stuck upon each other like they can even go to 20 levels, 30 level, 70 levels and levels. And these grow in a really small piece of land. So it's like these long buildings and these plants are growing with the perfect environment because it can be controlled the moisture. It can be controlled oxygen can be controlled temperature, anything. So you can grow plants in a really cool area or in a really hot area without any issues. But at the moment, the vertical farm technology is focussed more in green leafy greens and microgreens. So all of the technology is now moving into how can we grow different veg like a pumpkin, like carrots and other things that could give us more nutrients. But at the end of the day, it's like a really big building. And to control the temperature in all that area, it's quite difficult. And also they can be really tall is not as easy as when plants grow in the field, that you can go and check them and walk by and say like, okay, yeah, they're looking good, they're hydrated, they're growing. Well, these are just like, how can you actually monitor something that is on the 17th level? That's when these problems start to happen.

Diego Corona [00:02:34] Vertical farming is quite new and that's why it still needs to be perfected. So one of the big deals right now is, for instance, energy consumption. But also you see a lot of crop wastage that is due just because of the regularities. So one of the things that is quite common in supermarkets is that they'll set high standard for quality. And by this I mean setting standards for the weight of the crop, the size of the crop, how green it looks, things like that. And although with vertical farming, you get like these reproducible crops all year long, you still have some small variations, which has to do with the final size of the crop. And yeah, the main issue is hitting that supermarket target, that quality target. Even though vertical farms have the technology to control a lot of variables, they still lose a lot of crops. And overall there's like 7.2% of crop wastage in the UK. So when you translate that to the vertical farms around the world, that's a massive problem.

Vasileios Tsormpatzoudis [00:03:52] So in terms of technology, what high tech is doing and why our approach approaches so much different is that we are monitoring the roads beneath their soil through an electromagnetic sensor. That is by sending some kind of signals, something like a radar signal, basically the signal we found back on the roads. And it will give us an idea of Harvard who has been morphed and how it looks like and pay monitoring. And then we can model it and we can take information such as the readiness

of the crop, for example, or the size of the hill. We aim to increase the profitability for North American farmers, obviously, but more specifically, we aim to reduce that waste of the crop significantly and fast reducing all the extra CO2 emissions that this to mitigate as well.

Diego Corona [00:04:49] We'll focus on. Roots can help us optimise how any crop grows, especially wholemeal crops, for instance, maize. That's one of the key that we're looking at with vertical farming. We're looking at people that are investing in research and development of actually growing varieties of maize inside vertical farms. And that's because it can feed a lot of people by looking at roots. That's like the clever thing about it. For instance, I'm talking about me because the roots of maize are quite complex and they're always been a challenge in agriculture and. By looking at them and understanding them, we can optimise how well they grow in nutrients that they can absorb and essentially we can track the metabolism of the plant. And with that, we're going to be able to optimise all resources. And that's the key role of political farming, optimising resources, optimising water, optimising the energy that we use, and to make it a more sustainable and cyclical food supply. We cannot get into the same pitfalls as normal agriculture, and we have a big advantage and that's that the roots are not covered in soil, so they're easy to analyse and we can learn so much about the roots and we can enhance how plants grow just by looking at the roots. Hopefully what we intend to do is to enhance the profitability of particular farmers in the long run because it's still a new technology and there's a lot of challenges and it's been a bumpy road for vertical farming. But we believe that with technology we can enhance the way we live here.

Speaker 3: [00:00:38] Andrea Izquierdo [00:00:39][1.1] [00:06:50] I think the more we invest in research and in new technologies such as high tech, we're going to be able to grow and get the recipes to grow, things that can give us more nutrients and that can actually feed population. Because as I say, in the beginning, at the moment it's mainly leafy greens microgreens. But I think with all of the technology that we're developing, not just high tech, like everyone that is working in the vertical farm sector, we're going to be able to develop these recipes to grow other vegetables and other food that can.

Diego Corona [00:07:27] Get through.

Speaker 3: [00:00:38] Andrea Izquierdo [00:00:39][1.1] [00:07:27] The world's.

Matt Eastland [00:07:35] Thank you all for listening in to this bonus episode, and we hope you learn something new. If you'd like to find out more, head over to the EIT Food website at EIT Food or EU. And please also join the conversation via the hashtag EIT Food Fights on our Twitter channel at EIT Food.