**EIT Food Fight Podcast - S3 E7B - RootWave V4.mp3**

**Lukxmi Balathsan** [00:00:06] Welcome to this bonus episode of The Food Fight podcast from EIT Food.

**Matt Eastland** [00:00:11] In these episodes, we want to shine a light on new projects and agrifood start-ups and hear about their efforts to fight for a better food future. This week, we're handing over to Andy Diprose to tell us about RootWave a start-up tackling the use of chemical herbicides by using electricity to kill weeds.

**Andy Diprose** [00:00:36] Hi, my name is Andy Diprose, I'm the CEO of RootWave, we're part of EIT Food Rising Food Stars and we're fighting for the future of food because we're using electricity to replace the use of chemical herbicides.

[00:00:53] At RootWave, we use electricity to kill weeds without any agrochemicals. The crux of it is power engineering, which takes electricity from a tractor via its pto or via a battery or whatever energy source you want and it changes that into high voltage electricity that you need to drive current through the circuits with a weed in the middle of it to actually boil that weeds and kill it. In agriculture, those boxes will be across a platform on the back of a tractor being pulled through the fields. What you do need is effectively a piece of metal that contacts the weed and a piece of metal that touches the earth to receive electricity and then create that circuit. So you could think of it as pieces of metal being dragged across the surface of the ground, applying that electricity to boil the weeds in situ.

[00:01:54] RootWave started, I guess, a long time ago, my father has been zapping weeds for 40 or 50 years. He started off as an academic at Sheffield University doing this and never got the attention it deserved or the funding because agrichemicals were cheap, abundant, easy to apply and very effective. And it's only recently in the last decade or so where people have started to question the environmental issues associated with agrochemicals and have started to become more and more interested in alternatives to agrichemicals. So in the last decade, what we thought would do is take my father's crazy ideas and make them reality. So in that time, we've done quite a lot. We've obviously formed a company, we've recruited a team. We've actually launched our first products. It's professional hand weeder for parks and gardens to spot weed and to treat invasive species such as Japanese knotweed. It does that really well. And in the continent, it's being very well received. We're starting to branch out into agriculture where the real opportunity is so creating a large machinery to be pulled behind tractors to electrocute weeds at scale in agriculture.

[00:03:10] There's three main advantages to using electricity to kill weeds. The first broad category is that it's sustainable. We don't just mean it doesn't use chemicals, our technology doesn't use water. And majority of the global aquifers under stress at the moment. And also we can power our technology using renewable energy. So having a carbon free solution. So wrap all that together and you've got a sustainable solution. Secondly, it's regenerative. What we mean by this is we don't tell the ground, we don't disturb the soil. And this is actually something that the agro chemical industry is pushing. By using no-till technology, you can create healthier soils that become a carbon sink. You can actually capture carbon. Our technology is also a no-till so we can create a farming system that not only limits the emissions of carbon when your shocking weeds, but it creates less healthy soils to capture it. And lastly, it's affordable. So we're roughly comparable with the most inexpensive agrochemical that's most widely used, which is round up roughly about 10 years a hectare.

[00:04:24] There are some challenges to the agrichemical industry which electricity won't face. The first is regulation and that regulators are restricting use of herbicides. Secondly, nature is fighting back and herbicide resistance is increasing in weeds. And then finally, as a massive class action is going on in the US and other litigation throughout the world for some of these agrichemicals potentially causing skin cancer, for example. So the existing industry is under stress, regardless of where you sit on the safety aspect. And then you couple that with all the climate and environmental issues that our farming system creates and you've got a real problem.

[00:05:06] So EIT Food have been great for us, where we've benefited the most is the spotlight it brings. EIT Food look for the brightest solutions out there with the best teams behind them. And by shining that spotlight, we do get exposure in the media and in the industry that we wouldn't otherwise get. And I think its that spotlight just really drives home how much the EU is effectively behind the changes that need to happen to move to that sustainable society.

[00:05:41] What we want to do at RootWave is scale our technology and our products, you know, roll forward 10 or 15 years. What I want is one of our my machines and in every farm and around the world. So big ambitions, a lot of challenges along the way and a lot of funding required to do that. But ultimately, anywhere that uses agrochemicals, we can use electricity so we can compliment or replace the use of chemistry throughout the food systems and the built up environments and the infrastructure where you need some elements of weed control.

[00:06:17] Just to hit home what kind of impact we have. If we can get 10 percent of the market share, we can make some big changes. So we power our technology using purely renewable energy. So this could be from solar wind stored in a battery or hydrogen. We can save 14 million tons of CO2, which is roughly the emissions from a small country such as Cambodia, Croatia, Lao, Nepal, Slovenia. We can save fifty six billion litres of water, which is roughly the same as London's monthly water usage. And we can save three hundred and fifty million kilograms of herbicide going into the environment and ultimately the food we eat. For us, it's impacts that really drives and motivates the team because, you know, hopefully in 15 years time, if we still here, we can look back and really be proud of the positive changes that we brought to society and ultimately the planet.

**Lukxmi Balathsan** [00:07:19] Thanks for listening to this bonus episode of The Food Fight podcast

**Matt Eastland** [00:07:24] to find out more and learn how you can get involved in the fight for a better food future, head over to eitfood.eu/podcast and join the conversation via #EITFoodFight on our Twitter channel @EITFood. For more information on RootWave, head over to rootwave.com