

Smart Traps Billion Dollar Bugs And The Farmer Fighting Back

[00:00:00] **Donát Posta:** My name is Donat Kosta. I am the founder of Scout Labs. My background is farming and technology. Running a farm and, uh, dealing with all the challenges that they have to manage on a daily basis is extremely complex and difficult, and one segments which can cause, like, significant yield loss, sometime 20, 30%, is the insects. If we seeing the global statistics, insects are destroying around the same amount of food that a billion people are consuming every year.

So we can call insects are the third largest country, uh, seeing the food consumption. It's roughly 300 billion US dollar, uh, loss for the farmers, so it's a huge problem. And year by year you have to be, like, m-more precise and smarter because insects are adapting for the new, uh, [00:01:00] type of crop protection, uh, practices.

So it's a huge battle between farmers and, um, and the insects. And one of the way that the farmer can thinking about, uh, the crop protection is a more data-driven, more precise ways compare the program ways when they repeating the pesticide usage, the crop protection product usage every second week, every month, or depends which part of the world we are, and that's wh-where we are helping them.

So collecting data from the field is doable in manual way, manual using manual traps, but you have to visit the traps at least every week. You have to collect the data. You have to have trained labor who can identify the different type of insects, which is not an easy job. And after that, the data is, is collected, and an agronomist team is making a decision, what is the right time and what type [00:02:00] of pesticides is the right to use to solve my problem?

And if a farmer is deciding to move to digital, we basically saving so much, uh, labor to them because digital traps are using this small camera-based IoT devices. They're basically solving your problem to collect the data. We have a higher frequency of data. We can take pictures every day, so you're seeing the small differences between the, the days, and based on that you can do the right application at the right time, and it's cause a significant pesticide reduction on your farm because at the moment it's better to overspray a farm and not having a yield loss than little bit underspray.

The field of insects are really rich. There are more than 1,000 different type of insects, and few of them are causing significant yield loss, significant, uh, negative impact on your balance sheet. [00:03:00] And it has two main category. One of them is, let's call it inhabitant insects, which is on that region in a multi-decades time, and there are invasive insects, which is at the moment is not there or just arrive there and it's creating a new challenges.

And based on that, we have, like, two different customer group. We're working a lot with farmers, helping them in orchards, in vineyards, in broadacre crops sometimes And another big segments is the biosecurity monitoring programs. Biosecurity monitoring programs run by governments agencies and helping to prevent larger invasive insects outbreaks.

In a really broad pictures, most of the invasive development program are a fly monitoring program. There are more than 600 different type of flies, and they really care about which flies and which population level is at the moment [00:04:00] in the region. And based on that, they can do quarantining programs and eradication programs to basically solving the challenges before it become really acute and really difficult to the farmers.

That's a really big category of our, uh, uh, business development. We are s-extremely proud to working with the larger pro- largest programs in the world, uh, in that case, and we putting so much effort and resources to, like, creating the state-of-the-art solution to managing 50,000 traps. It's a significantly new challenge if we trying to add together all the digital traps in the world at the moment around 30,000, 35,000.

So to just have one customers is requires more than 50,000, 60,000 is a significantly new challenge on an operational level and technical level as well. On the other side, the farming side For example, we have in lots of, uh, [00:05:00] apple orchard owners, uh, one of our key customer groups. There are the codling moths, which is the apple moths.

Uh, they're using multiple different type of strategy on the crop protection, uh, practices. But what is common, if it's data-driven, it's more efficient, they can reduce costs and optimize the, the outcome of the, the yield. We're working with lots of vineyards, uh, owners as well, helping them monitoring Globespia, uh, botryona in their, in their fields, and especially in the United States, in California, we are working with, uh, almonds, uh, farm owners and helping them to monitor the navel orange worm.

And the best example why that's really, like, a, a big problem because the climate is changing and it's causing multiple type of swarmings in the year. And normally there are like, for example, two swarmings of the [00:06:00] navel orange worm in a normal year. But if the conditions are different and better for the navel orange worm, it can be three.

And most of the farmers is like preparing for two pesticide usage, and if they are missing the third one, they can have a massive 30% yield loss of what the farmers experienced two, three years ago in California. So these are these, these changes that the farmers has to really quickly adapt. If you do something this year in a perfect way and you're just repeating in the next year, it not results the same outcome.

So you have to be really careful how to optimize and how to care about the crop production side of their business. So farmers are using manual pheromone traps most of the case to track the pest pressure in their fields. But what is the challenge to using manual traps is the labor. [00:07:00] Ideally, you have to be agronomist or entomologist who is checking the traps regularly, ideally more than once a week.

And based on that, you can start it to, like, plan your crop protection strategy. Unfortunately, most parts of the world is not really suitable to do anymore to hire that amount of labor and run that process. One side on the labor shortage, the other side is the cost. And that's why digitalization is becoming more and more important in the insect monitoring field.

Our core idea is coming from a farming family, is that any technology which is adding cost to the farmers is extremely difficult to implement at scale. So we're speaking hundred thousands and millions of traps, not a few thousand traps. So our key logic is that how to design a product that reducing cost to the [00:08:00] farmers and adding all the advantage of the more frequent data.

So we're saying to farmers that you can use the same traps as you used to using in your farm, just we're adding a few components. One of them is a camera-based IoT device, a small solar panel in the bottom of the traps, and, uh, and the battery. And adding these three components, we're transforming the manual traps to digital.

So it just hangs in the beginning of the season, and after it's collecting the data every day, no matters what happening. And that's changing the way that they can see the data and make the decision with a significantly lower, uh, uh, labor

cost. Of course, we are in the 21 century, so we are sending push notification, so the farmers don't have to check every morning in the, in the pest pressure.

Whenever there are [00:09:00] any threshold we reach, they getting just a message, and they can, like, redesign the day and the coming of next day and solving their pest pressure problem.

About the, the efficiency of, of the technology, it has two sides. One of them are the labor intensity. We're reducing between 75 to 80% of the labor intensity of the monitoring. And the other side is the quality of the data. And basically our system is fully, uh, transparent. Every day we are sharing the pictures and showing the computer vision what identified what type of insect We have really high, uh, 96, 97%, depends which insect we are speaking about, the, the quality of the, of the monitoring.

After that, we don't have a broad picture how the crop protection practices are [00:10:00] changing because they don't reporting back that data to us. But we have some farms where we are really close to them, and we are super proud about that. We had multiple farms to go from chemical pesticides to biological pesticide usage, which is a huge transformation.

It's a totally different mindset, totally different way of using the pesticides. It's a more preventive way of, uh, of methods, not an active, uh, responding to the pest pressure. So you have to, to do not just implement the technology, but change your entire operation, how they're thinking about the, the crop protection.

My experience that all the farmers is knowing their biggest asset is their soil, their field, and they don't want it to spray unnecessary chemical pesticide because they know that it decrease in the biodiversity, and it's creating a, a [00:11:00] more costly way of farming if you have to put more inputs next year in, in the, um, field.

But from moving to chemical to biological is a, is a, is a real transformation, so it's not happening on that way. Today I'm buying a biological pesticide, I'm using the same way, and I have the same outcome. You have to be more precise on a timing perspective. You have to thinking more like an ecosystem.

It takes a little bit more time, and, uh, on the other side, you have to have a really deep understanding what you do and why you do. And this transformation is a complex process, and we are extremely happy that we

helped multiple farms to go through that process. So for us, the next steps is to helping the largest biosecurity programs all around the world.

We realize that invasive insects are causing a crazy amount of field loss for the farmers. Sometimes it can be [00:12:00] 60%, and you have to, like, take actions multiple years before than the problem is happening. So at the moment, our largest responsibility to find the right decision makers in the agriculture and biosecurity, uh, field and helping them to understand how they can transform a manual system when best case scenario, you can check your traps in every second weeks, but sometimes in every month On a lower cost base with digitalization and having daily data points, and if any of the invasive insects is arriving to your territory, you can start the prevention as soon as possible and reducing the, the negative impact of the invasive insects.

It means that we have to develop multiple type of traps. A system that is like fifty thousand, sixty thousand traps running fully automatedly require different, uh, a way of [00:13:00] thinking about the products as, uh, like, uh, fifty traps, smaller farms. And we are in the middle of that process is to basically keeping the same core logic and the technology, just making those small changes that making the technology available for a significantly larger, uh, scale.

And the other side, the global politics starting to be extremely, uh, difficult. So we have to dedicate resources and time is to figuring out how we can creating different way- uh, routes of the manufacturing on the supply chain side, because we're working all around the world, and we have really s- uh, important deadlines.

The agriculture season is starting, so we cannot be, uh, late. So we are putting so much resource and efforts how we can basically mitigate the geopolitical risk, uh, in the system. [00:14:00] We're working with the EIT Food from the really beginning of our story. In the beginning, it was just like a competition and we, we get some, uh, nice awards and some spotlights, uh, that we starting to develop something exciting technology.

And in the last year, basically, we find a way to collaborate in a significantly larger, uh, level. We reached more than 20 X growth from one year to the other. And every company which has a hardware elements financing the manufacturing is extremely complex because we have to pre-finance and only shipping the products we can started to collect back the, the revenue.

And we are basically subscription-based, which make it more complexity how to finance the manufacturing. And EIT, uh, Food has created a program that's

helping my company and lots of other companies who can reach that tipping point to [00:15:00] starting to scale, but the normal banks are not able to finance that inventory, uh, uh, cost.

So I'm extremely happy that, uh, EIT Food is, is super open to always find a way how the AgTech companies can go further and delivering more positive impacts in the world.