“Better Futures placed me in a fast-moving, disruptive start-up working on big challenges from day one.”

Ben Collis
Intern at Materra

By joining the Better Futures Internship Programme, student Ben suddenly became 25% of the workforce at startup Materra. Far from starting with menial tasks, Ben was doing high-level work from the outset and using his design engineer skills to approach big challenges. Here he tells us how inspiring and exciting his internship experience was and why he’s more committed than ever to a career in cleantech.

Hi Ben, what made you decide to do an internship with one of the Better Futures companies?

Everyone in my generation is meeting this existential crisis about climate change, and many of us have come to the conclusion that we have the skills to make a difference. I decided a while ago that my career would be in sustainability, and that’s what drew me to the Better Futures Internship Programme and Materra. I was really interested in what they were doing.

Can you tell us about the work Materra does?

Materra develops plant-centric farming technology to grow cotton in the most sustainable and transparent way possible. They help cotton farmers build better infrastructure to help them cope with climate volatility and dramatically improve their resource efficiency. They also work to empower cotton farmers to make better decisions and improve their farm management. When I was looking for an internship, I didn’t want to work in a slow-moving organisation, and Materra – as an early stage seed startup – was massively disrupting their niche.

Tell us about the things you worked on during your tenure there.

My brief was to solve the problem of picking cotton – which is a pretty big one! Traditionally, cotton is picked on an industrial scale by million-pound combine harvesters or by hand by very low paid labourers. There is nothing in the middle, and that was what Materra wanted to find. They needed some kind of mechanism that improved the process of picking cotton, and I got cracking with that.

How did you approach it?

My degree in design engineering at Imperial had prepared me for challenges like this. We have a design process called Double Diamond where you do some exploratory research and then definitive research, and then exploratory problem solving and then definitive problem-solving. We were in a heavy COVID lockdown at the time, so I conducted meetings with experts and read a lot to figure out this problem area. From there, I was able to start working with the team to begin prototyping some solutions.

It sounds like you were doing high-level stuff from the off.

I got so lucky with this because I had complete freedom. My bosses at Materra trusted me because they also came through the Dyson School at Imperial, so we spoke the same language. At uni, we're used to working with scary problems in a field of uncertainty but in a controlled environment. Sometimes in internships, the interns get pushed aside, but in a team of four where you are 25% of the workforce, you can't be pushed aside.

What were the highlights of your experience?

Visiting a huge test farm, where Materra had a small hydroponics testbed, was a highlight. It was great to see the cotton plants grow there. At one point, there was a bit of a lull in the project, and they said, 'Ben, we can't understand how much water is coming off our system. Can you find a way of monitoring water loss?' I went off and bought an Arduino microcontroller and flow rate sensor and then coded some stuff. I used a 3D printing mount to fit on the end of their existing water system, installed it, and it essentially printed off the amount of water coming off the system to the SD card. They were able to use that to monitor the data. There were very small, quick projects like that with outcomes I could see straight away that were great fun to work on.

What advice would you give those people interviewing for internships with Better Futures companies?

With Materra, they were very motivated by their goal of finding a more sustainable way to grow and pick cotton, so I had to make sure I was motivated by that as well. In the interview, I made sure they saw that I really cared about the problem and sustainability. The founders had a real fire in them about this issue, and it was very inspiring.

How can interns make the most of the opportunity they get on the Better Futures Internship Programme?

The job is going to be as good as you make it. In a startup like Materra, you have to be proactive and create your tasks, as well as getting things given to you. In a small company like that, you get to know and understand the challenges, which you can then make suggestions for solving. Speak up and make sure you tell them what you want to learn as well. You need to talk about your interests and find ways to learn more as part of their team.

Has working with Materra changed your plans for your future career?

It definitely helped me broaden my horizons as I'd never considered going into agritech before I applied. It's reconfirmed that I want to work in sustainability, and it was great to get experience in a startup business. I've always been interested in sustainable packaging design, and I'm hoping to launch a sustainable social impact start up with some of my classmates after uni is over. I'm very grateful for the opportunity I got through the Better Futures Internship Programme, and I know the skills I developed will help me in my future career.