



SULSA's Forging Futures Scheme

PESTEL Analysis

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As a science student it can be difficult to know where to start to engage with industry. PhD students rarely dip their toe outside the academic waters, because we are so focussed on getting our experiments to work, and finishing our paper, and (deep down) we are frightened of what is out there. Thankfully, SULSA sees our trepidation, and has begun preparing a cohort of PhD students and postdoctoral researchers from across the life sciences in Scotland to take that dive into industrial engagement. The SULSA Forging Futures training began in January this year, and has been providing seminars and networking opportunities, to bridge that gap between academia and the world of business.

Initially, I was surprised that the focus of our training was not so much communicating our research as analysing different aspects of businesses. One quote that our trainer Cait Green said to us on the first day was 'Seek first to understand, then to be understood'; it has taken me a few weeks to fully grasp the value of this advice. The onus should not be on industrial collaborators to scan the labs of Scotland for possible research that could apply to their supply chain, or sustainability targets. For a start, they might find a researcher who is not me! In academia, we can identify the opportunities, or make them for ourselves, by taking a small amount of time to analyse an industrial sector. Our SULSA training is giving us the means to do just that, such as PESTEL analysis, which we were introduced to last week.

PESTEL analysis is a tool to help you understand the external factors affecting an industry. Businesses do not operate in a vacuum, but rather they are buoyed and buffeted by changes in the society they inhabit. PESTEL is a mnemonic that prompts us to research six key external factors: **p**olitical, **e**conomic, **s**ocial, **t**echnological, **e**nvironmental and **l**egal. My particular interest is the fresh salad industry, as a researcher into post-harvest health of leafy crops. Even a superficial PESTEL analysis demonstrated to me the value of keeping a watching brief on the legal and technological factors most particularly.

Much to my surprise, the legal column of my salad industry PESTEL analysis quickly became my longest: patents, quality control, and food safety are all tightly controlled. In September 2021, the law in England (not here in Scotland) changed to allow gene-edited plants to be grown in field trials; any widening of this law would be a huge change in the industry. There are also regular law changes on which pesticides, herbicides and fertilisers can be used. New restrictions can affect farmers' ability to control disease in this more traditional way, but can also open the door for plant immunity researchers to join the conversation, and discuss creative solutions which could take advantage of

new technologies.

Technology was the sector I felt most confident about, until I dug a bit deeper into all the advances in the world of food cultivation and processing. I went down a YouTube rabbit-hole of watching the progress of individual lettuce leaves as they were washed, scanned for colour profiling, then blasted by a robot air jet if they did not make the grade. I tip my hat to our colleagues in engineering and informatics. It can seem overwhelming to stay on top of all these areas of technology, but even a superficial understanding can help me to identify new avenues to add value. I would love, for example, to get that colour profile data on those doomed lettuce leaves.

SULSA's training has broadened my horizons: I am now scanning them for changing laws, and advances in engineering as well as in plant biotechnology. More importantly, I am trying to understand the needs of an industry of which I want to be a part. We PhD students can take the curiosity and creativity that we use in dissecting, say, a plant hormone pathway, and apply it to finding spaces where our research resolves problems in a supply chain. It is not quite so frightening when you look at it like that. In fact, it is pretty exciting.

Resources

Spray Optical Sorting Machine for Baby-Leaf Salad: www.youtube.com/watch?v=D999LnUuwgq

