Participants:

- David Raine – Technical Director at Pro-Pak foods. (D)
- Sami Rahman (S)

S – So, hello David,

D – Hi, how are you?

S – I'm good, and yourself?

D – Very well, thank you.

S – I'm Sami, I'm from the Nottingham iGEM team, and I've just got a few questions here regarding Pro-Pak foods. If you'd just like to introduce yourself and Pro-Pak itself.

D – Hi, I'm David Raine, I'm the technical director for Pro-Pak Foods. We are a ready meals manufacturer in North Yorkshire, Bolton, part of the Tönnies food group, or CPC as it is known in the UK. We've been established for about 20 years. Our main method of production is to retort ready meals, so we use Lagarde retorts to retort our ready meals with two different cooks. A 90˚ for 10 [minutes] *C. bot* cook or a sterilisation cook.

S – **Awesome, and first question I'd like to ask you is: does Pro-Pak Foods use any GM organisms?**

D – No, not at all.

S – **Have you ever considered [GM organisms].**

D – No.

S – **And why is that? is it just consumer….**

D – Retailer driven and consumer…consumer knowledge I think is probably the best.

S – **What are your quality and food safety controls that you have?**

D – We have a large number of quality and food safety controls. We validate and verify all of our [*C. Bot*] cooks using loggers through the retort. We also microbiologically test products to check for pathogens and bacteria, and we also organoleptically test products on taste panels twice a day.

S – **And just to clarify, what is organoleptic?**

D – Organoleptic is taste, flavour, smell…

S – **And, you say you [do] testing, do you test for botulism?**

D – We don't, we don't have a botulinum test. We use a standard industry guideline for botulinum cooking, which is 90 for ten [minutes] or 121.9 for F06, or F04 I think it is, but we go to F06.

S – **So, is that a standard just for like, for all of the food industry?**

D – It is a standard for the industry yes, an industry standard.

S – Do you have any current methods or procedures, sorry that was for preventing botulism wasn't it.

D – Yes, we always use standards for…

S – **Are they reliable methods?**

D – They are reliable methods, they are industry standard, they've been used for years especially in canning. Canning was where they were developed from. To stop *botulinum* in canning, and those cook temperatures and times are fairly standard.

S – **If a botulism outbreak were to occur, would Pro-Pak be able to deal with it? And how would they be able to deal with it?**

D – I would hope that our cooking systems are in place, that we would not have to deal with a *botulinum* outbreak. I don't believe it would happen. We have, obviously, strict procedures and protocols in place to stop that from happening. If it became a *botulinum* outbreak, there would be a major food scare and the factory would be shut overnight. So, I would ensure that would not happen with the procedures we have in place, because for the business it would be catastrophic.

S – **And because you don't do any testing yourselves, I don't believe what you would culture *botulinum* on?**

D – I have no idea about that, I'm awfully sorry.

S – **Is it [*C. botulinum*] a priority in regard to other food borne organisms. Where is it along the…?**

D – Botulinum is our chief bacteria of concern, but that's why we do the specific cooks we do; which is why we class it as a *C. bot* cook, a *Clostridium botulinum* cook. Which is 90 for ten [minutes]. On most of our ready meals, most of our ready meals are a 42-day life. Under the SSLCF guidelines, which are posed by the CFO. CFA, the Chilled Foods Association.

S –**And so… We've spoken to you about our project. Do you have any interest in the project itself, our device?**

D – I do think it is interesting, I think it would have more guidelines set for the cooked meat industry, the raw meat industry. The bacon and ham industry. I find it very interesting to see how of benefit could be, in terms of cost. As I stated earlier, *Clostridium botulinum* challenge testing is a very expensive methodology. If we were dragged down that route, we would have to pay for it, but at that point you consider whether it is viable for what you want to do. The costs of what you want to do. the costs of your machine, the ability to produce and prove that it works would be very interesting.

S – **And how much is a test for *botulinum*?**

D – I've heard various figures between £8000 – £12000 for a challenge test.

S – OK

D – It's a lot of money.

S – **You say it would be good in the meat industry, why is that the case?**

D – Because the meat industry, the cured meat industry, bacon and ham industry have been put under immense pressure to remove salt, nitrile and nitrate due to their carcinogenic, and obviously the effects of salt on the body. They've been dropping levels which allows the proliferation of Clostridium, because the levels are so much lower.

S – **So for our device to be viable for the industry, and maybe Pro-Pak, it would need to be cheaper than £8000-12000.**

D – It would need to have a cost benefit, in terms of its cost and ability to work. So that would be a key driver for it.

S – **Is there a rough ballpark figure?**

D – I couldn't really give you a figure, margins in the industry as a whole are very small. So, we look at the most…best viable option and best fit for our industry.

S – **And, I assume your steam fresh cooking process is the retort?**

D – We don't say steam fresh. What we tend to use a steam cook under pressure in the retort. So, we are cooking under pressure at a certain temperature for a certain time in the *Clostridium botulinum* cook. And, the steam is used within that, as the pressure…pressurised steam allows the cook to occur.

S – **And what pressure would that be?**

D – 2 Bar.

S – **And, so testing; you outsource that?**

D – Yes, we have a laboratory, a third-party laboratory who do our microbiological testing.

S – **Which companies do you use?**

D – We use Microsearch.

S – **Microsearch?**

D – Yes.

S – **And, is there anything outside of the food industry we should look at as well? Perhaps in other places that would be applicable?**

D – Not really, because, I mean, *Clostridia* in the food industry is the main issue. You're far too young to remember the John West salmon issue, where people died because the cans got punctured and *Clostridium* was in the cans. But it is a big, a challenge in the food

industry because of the ten-day ruling. There is a ten-day law for chilled foods that haven't had a *Clostridium botulinum* cook. So, anything over ten days there is a benefit there for.

S – I believe that's everything that we have to ask, so thank you for your time.

D – No problem, any time.