

Issue:

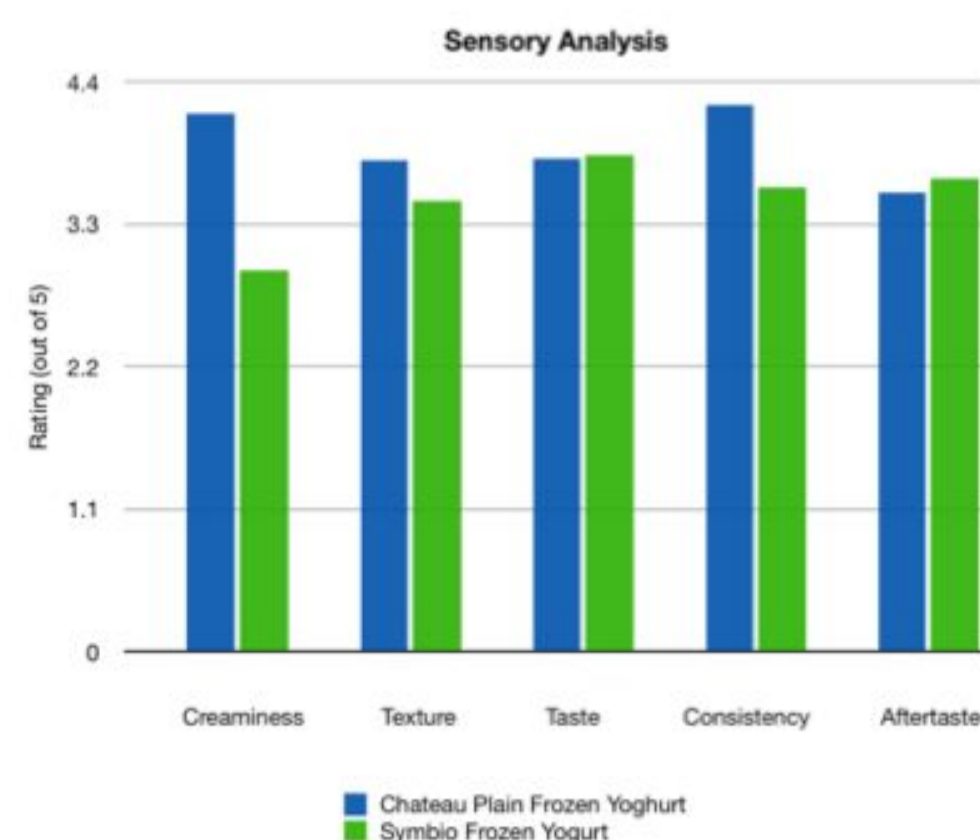
As a challenge team we saw an opportunity in the food market to produce a Probiotic Frozen Yoghurt. Our goal was to create a healthy alternative to Ice Cream for health conscious professionals.

Aim:

Our aim was to develop a product that could fit into an existing range manufactured by fonterra. We saw that our product would fit well into the Symbio range (shown below) as its products are targeting the same market and uses probiotics. The yoghurt must also meet the specifications outlined below.

Sensory Analysis:

Based on this information it can be seen that the Chateau Plain frozen yoghurt was ranked higher out of 5 in creaminess, texture and consistency. This is likely due to Product A containing stabilizers and almost double the sugar content which has a large impact on creaminess and consistency. The two products were ranked very close in terms of aftertaste which means we are not concerned with further development of this area. Our product was ranked higher in terms of taste which is positive considering it contains significantly less sugar. For most of our reviewers they preferred the taste of our product better, describing it as "tangy, refreshing and clean". Averaging out the rankings for each category our product was rated 3.5 out of a possible 5 points (just below Chateau Plain frozen yoghurt with a 3.9 point ranking). These are extremely positive results considering the differences in nutritional composition as described below.



Specifications:

- Creamy frozen yoghurt.
- 4 health Star Health Rating.
- Meet the needs of our target audience.
- Contain probiotics.
- Fit in a current range produced by Fonterra.

Nutrition Summary:

Because of the nutrient composition of our product we are able to describe our product as **an increased source of protein, reduced or lite sugar, low in sodium and a probiotic product**. These are all good labels to be able to put on packaging as it makes a consumer more likely to choose this product. These labels are also likely to appeal to our target market of health conscious individuals so is likely to increase the demand for our product. It will also allow the product to fit within the Symbio range and keep the positive brand image associated with its products.



Method:

After completing initial research into potential products, a probiotic product was chosen due to the current gap in today's food market being identified. The product was then developed through recipe trials and method adaptations to find the best and most suitable outcome for our product. A part of this was the work done to create a probiotic product, including temperature logging yoghurt making process to estimate final probiotic content. Once the product was developed sufficiently, it was tested against an existing frozen yoghurt (Chateau Plain Frozen Yoghurt). This feedback provided information from health conscious individuals (the target market) about the desired sensory elements of the product and where the product needed to be adapted further. To meet the specifications outlined in our brief, method adaptations were needed as well as changes to our recipe we are explained below. As the product began to be finalised, packaging was developed for the product as well as potential logos.

Final Outcome:

We were able to produce a probiotic frozen yoghurt that meets all specifications we outlined except the Healthstar Rating (discussed possible solutions). This product fits into the existing range of Symbio under the manufacturing company of Fonterra. Our sensory analysis showed our target market responded positively to our product and this combined with our commercial cost estimates suggests this is a potential product that could be successful for Fonterra.

Process Development:

Our first method we used involved churning our yoghurt mixture in an ice cream maker for 20 minutes and then transferring this slightly frozen mixture to the freezer overnight. We found that the minimal air incorporated was lost overnight as the product froze.

Because this was not as successful as we hoped, we worked to further develop this process. Upon suggestion to turn up the speed of the ice cream churning which we were unable to do we tested using the frozen bowl and a hand held beater. This was as we wanted to increase the volume without adding more ingredients, so incorporating air into the mix was the best option. We found this process worked well after a volume increase of 72.73%. This created a product we were satisfied with but wanted to trial a more commercial method (faster).

After talking with our mentor we decided to trial using liquid nitrogen to see if this would freeze the mixture faster while we still increased the volume with the electric beater. However we found after adding the liquid nitrogen and leaving it in the freezer to set, the next day it had decreased in volume. We returned to the original method of whipping the air into the mixture without using liquid nitrogen however this was good knowledge to gain.



Set yoghurts in container used for temperature logging so probiotic bacteria concentrations could be accurate



Frozen bowl on angle so maximum air was incorporated into the mixture



Trialed using liquid nitrogen to increase the rate of freezing and trap more air in the yoghurt



Final Product

Packaging



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