We need to develop an ice cream product which contains reduced additives, but still maintains a smooth, pleasant and desirable texture and taste that people will enjoy.

INITIAL ATTRIBUTES

The ice cream must look appetising, so that the product is attractive and will appeal to people to persuade them to purchase and eat our product. The colour must clearly represent the taste of the flavour.

The texture must be creamy and smooth, as texture influences the taste, and since we are reducing the amount of additives/stabilisers (this is significant). If the texture is unappetising and unpleasant, our product will be less desirable to consumers.

The time to make our ice cream must take only 1 hour to prepare, and then freezing time of 5-6 hours overnight.

The product must be served in a one serving cup/pot, as this will mean that the product will be ready-to-eat as soon as the consumer purchases the product, in comparison to 1L tubs of ice cream.

The ice cream must have a flavour, with balances between creamy and sweet (the fuzzy flavour must be the dominant taste). Flavour is usually what first attracts consumers to a product. Therefore the flavour must be interesting and different, and still appealing and appetising.

The environment in which our product needs to be sold is indoor, convenient stores and possibly (high-end) supermarkets. This is the environment which has the easiest accessibility for our target market. Higher-end supermarkets tend to contain customers of a higher quality, or with different and unusual ingredients, and special dietary requirements, similar to our product.

The price of our ice cream must be reasonable and affordable for teenagers. It is important for us to consider the cost of the ingredients used so our target market are able afford our ice cream.

The ice cream must have a balance between creamy and sweet smarts, but the dominant scent must be the particular flavour of the ice cream. This is important as scent is one of the four senses and vitally important for the consumer’s opinion of the product.

RESEARCH

Throughout the development of our product, we have done much research. We did this through:

- The Environmental Investigation process, by using the internet to research information on ice cream, such as average shelf-life, where ice cream can be sold, if it is ready-to-eat, problems and hazards usually encountered while making ice cream, and we also researched common stabilisers used in ice cream making, and the effects of them.

- We visited dairies, convenient stores, supermarkets, and high-end supermarkets, to view the existing ice cream selection available in each (different) environment.

- We also evaluated existing ice cream products, and discussed the flavour, texture, smell, appearance, packaging, and possible target markets for each, also comparing and contrasting the differences and similarities, whilst considering the environment, particularly the shelf-life.

Before devising our attributes, we created an ice cream survey to research many factors such as where consumers buy ice cream, their favourite ice cream brands, favourite ice cream flavours, and how much they would typically spend on ice cream, whilst also taking into consideration the individual’s age/gender. After each trial (both initial and key trials), we received stakeholder feedback, by using a Stakeholder Sensory Feedback Form, that we constructed using questions to help us improve for further trials.

Throughout the project we gained stakeholder feedback on considerations, need/ opportunity environment, prioritisation, and Passiuus Interesting Chart (PIC) chart, and all trials. In order to receive standardised feedback on stakeholder’s opinions and how they believe we can improve the development of our product.

CONSTRAINTS

Our constraints included having a limited budget to buy ingredients and also equipment. This meant that for a long time we used a constraining ice cream machine because before we started our further trialing process.

Therefore, we have decided to create an ice cream that only uses one stabiliser rather than the usual two or more, currently available in the market. Therefore, we aim to develop an ice cream which is more natural and also pleasing to taste. We will also create a flavour which is our current popular flavour (particularly in summer) and since fruits contain the natural stabiliser, pectin, which will also help in our task to reduce stabilisers.

Many commercial creams are a conglomeration of chemicals and additives. These include hydrogenated oils, high fructose corn syrup and dry milk solids as well as other chemicals used as cheaper alternatives to replace natural products and to give flavouring. Although additives are regulated by the Food Standards Australia New Zealand and bodies overseas, there is still a belief that additives can cause behavioural and learning difficulties such as ADHD. Our aim was to prove that we

PROBLEMS ENCOUNTERED

The main problems we encountered during the development of our product were textural issues. These were mainly iciness and hardness. To overcome these problems, we asked for feedback from our mentors, and they provided ideas, such as, increasing the fat content, as fat does not freeze, therefore resulting in a softer consistency; adding fruit which adds pectin, which is a natural stabiliser to help these consistency issues; ensuring that the ice cream is fully chilled before adding to the churner, as the ice cream is not cool enough it can cause larger ice crystals during the freezing process; too much sugar can cause hardness, however too little sugar can result in a too soft texture; the churning of the ice cream must be fast, if it is too slow, larger ice crystals can develop - the faster the churning the more air that is incorporated; adding alcohol, as it also does not freeze. Therefore, in recipes which we used that required milk and cream, we decided to replace the milk with cream, and this therefore helped, along with the use of stabiliser in later trials, with these textural problems. At the beginning of our project the equipment provided by the school was constraining, such as the ice cream churner and scales. The ice cream churner difficulties meant that the churning time took longer and most times we had to stop the churning process before it was ready, and also producing inconsistencies. The scales mean that we were unable to measure the ingredients accurately which can ultimately affect the overall flavor of the ice cream and can also have other effects such as textural issues. However, both of these issues were overcome before we started our further trialing process.

Further development:

If we had more time we would have liked to have the opportunity to trial using other stabilisers to see the routes, and find possibly more beneficial options, and also have a better understanding on the effect stabilisers have on the product.

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