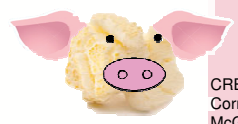




Piggy POP



CREST team members:
Corrie Dinmore, Katie Hunter, Celine McGahan



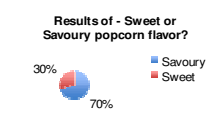
Introduction

Our CREST team was given the opportunity by Sherratt Ingredients to create a new popcorn sprinkle (to flavour popcorn), containing no artificial colours or flavours. Popcorn is a very popular snack, yet people have become hesitant to by it due to its low nutritional value and added artificial elements. So by creating this product, we will help fill a gap in the market, where a limited amount of different tasting healthy popcorn products containing no artificial elements are currently available.

Research

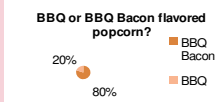
- Throughout every step of planning and developing our product, we conducted a wide variety of research including:
- Researching a variety of possible planning tools to use
 - Market research to discover already available popcorn products and our possible target market
 - Surveys to determine what attributes consumer's want in a suitable popcorn product
 - Sensory evaluations
 - Research into all natural powdered ingredients
 - Large amounts of trialing and collecting stakeholder feedback

When we carried out Market Research in a variety of Supermarkets, we were able to identify that the vast majority of popcorn flavors available were sweet. We wanted our product to be unique and different than any other currently available, whilst still being desirable to consumers. So we carried out a survey where we discovered useful information that helped us decide that we were going to make our popcorn flavor savory and what our initial attributes were going to be.



Product development

After a large number of trials, trialing a variety of possible popcorn flavours, taking results from trials, surveys, market research and stakeholder feedback into account we decided to continue with BBQ flavoured popcorn as it was one of our most successful trials and fits the brief. We wanted our product to be new and unique. So we decided to utilize the all-natural products provided to us, and use them to positively alter the already well-known BBQ flavor, whilst still ensuring no artificial colors or flavours were used. The product we used to alter the BBQ flavouring is - 'All natural Smokey Bacon flavouring'. We trialed the new BBQ Bacon flavoured popcorn and then conducted a survey to see which flavor our stakeholders preferred, to see what flavour was most desirable and BBQ Bacon was most favorable among consumers.



Tests

- To ensure our final product met our specifications a variety of tests were conducted in each trial:
- Color tests on both the flavouring and popcorn to ensure the color was of the flavouring was a vibrant orange and the popcorn was a golden yellow meeting our specifications regarding appearance
 - Visual tests, to inspect the condition of equipment for safety reason and distribution of oil & flavoring
 - Taste tests to ensure the popcorn used was not salty as this would effect the finished products taste
 - Time tests, to ensure the grinding time of the flavouring was long enough to become a fine powder



Constraints

- Throughout the development of our product we had few constraints. These included:
- Not having the required all natural ingredients early enough in the trialing process
 - Not having the scientific scales required to very accurately measure the quantity of each powder added. These scales would have been preferred over basic scales as if 0.01g more of an ingredient is added to our flavouring it could greatly affect the overall flavor causing it to be unbalanced
 - Not being able to test our products maximum shelf life.



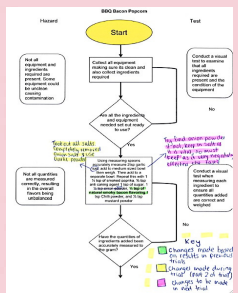
Market research



Finished product of one of our final trials



Air popping popcorn machine used to cook popcorn using no oil



Annotated flow chart



Method

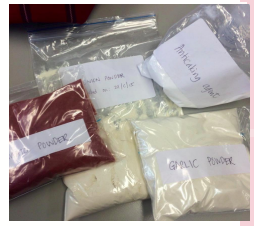
- Planning-** here we researched efficient planning tools to help ensure that key stages of our project be completed on time. We decided on, Gantt chart, Log books and Action plan. We also determined possible primary and secondary stakeholders.
- Brief Development-** here we identified considerations (age group, target market, ready to eat?), developed a need or opportunity, carried out an Environmental investigation, market research, developed a conceptual statement and initial attributes.
- Initial trialing-** here we trialed 8 possible flavoured popcorn products then tested them against our initial attributes, received stakeholder feedback and evaluated them all.
- Processing and trialing-** Based off initial trialing results we chose 5 concepts and evaluated them through PMI and PISC charts. Then decided on 2 most favorable products (Salsa and BBQ) and developed a refined brief and specifications they must meet. Trialed both and decided to only continue on with BBQ which was then developed into BBQ Bacon flavour. Continued trialing BBQ Bacon flavoured popcorn collecting valuable stakeholder feedback, making several alterations until final product was reached.
- Packaging final product-** Selected product name, designed product logo and packaging, found means of packaging and nutritional information to go on label to educate consumers on the ingredients present in our product.

BBQ Bacon Seasoned Popcorn

NUTRITION INFORMATION		
Servings per package: 5		
Serving size: 14g		
	Average Quantity per Serving	Average Quantity per 100g
Energy	620kJ (148Cal)	4370kJ (1040Cal)
Protein	8.0g	56.0g
Fat, Total	6.9g	48.5g
- Saturated	2.5g	17.7g
Carbohydrate	10.0g	70.5g
- Sugars	1.7g	11.8g
Sodium	80mg	560mg

Problems we encountered and how we addressed them

- Throughout the development of our product we encountered several problems and had to make educated decisions and changes to address these problems, so that our product would meet our specifications:
- We initially used oil to both cook and coat the popcorn with to act as a sticking agent. This constant use of oil caused the popcorn to go slightly soggy. So we researched ways to cook it without using oil and discovered the air popping popcorn machine. This machine air pops the popcorn perfectly
 - When the flavouring was combined with the popcorn, it became clumpy and unevenly distributed. So we contacted Sherratt Ingredients on ways to improve this, and researched it. They provided us with an anti caking agent. This agent stops lumps from forming in powders such as ours.
 - The taste of the flavouring was different each time even if no changes were made to quantities of ingredients. So to ensure that the exact quantity of each ingredient was added we first accurately measured using measuring spoons, then weighed to the gram using a scale for extra precision.
 - The flavouring was slightly spicy so we added All natural Tomato and Lime powder
 - The texture of the flavouring was very grainy, not the desired smooth powder listed in our specifications. So we lowered the use of grainy salts and used all natural powders provided by Sherratt ingredients. Then used a mortar and pestle to grind all the flavours together to further improve the texture.



Further development

- Due to the time available to develop our product being rather limited, there are several aspects that we would have liked to develop further. This includes:
- Experimenting with more complex flavours and flavour combinations
 - Trialing a savory glaze to coat the popcorn
 - Being able to test our products maximum shelf life instead of estimation
 - Elaborating our sprinkle to flavouring not only popcorn but also chips and crackers.

Conclusion

Our product of BBQ Bacon flavoured popcorn entitled 'Piggy Pop' meets the brief provided to us by Sherratt Ingredients. This is because it is a new popcorn flavour containing no artificial colours or flavours.

We would like to acknowledge the support, advice and consultation from Julie Iagon and Aaron Salazar at Sherratt Ingredients, Rod Hare from FutureIntech, Miss Catherine Taylor from Westlake Girls High School, CREST and NZIFST-

