

# REME REKA

## Initial Brief

Our mentors at MPI set us a brief to develop a novel food product or ingredient for an export market, aimed at families with school age children. This product needed to contain a major ingredient from New Zealand's primary industry and showcase the New Zealand brand.

### Specifications given

- Must be targeted to consumers in a selected overseas market.
- Must consider food safety risks and hazards that could affect our product.
- Must enhance the reputation of New Zealand as a provider of food.
- Must consider the conditions of the destination country and how this may impact on our product.
- Should consider the nutritional requirements of the target consumers.
- Could add value to an existing animal product.
- Could be a consumer product with cooking and storage instructions.

## Research

- Singapore is already one of New Zealand's largest markets for food and beverage products in Southeast Asia, Exports are valued at \$559.9 million
- Singaporeans are increasingly health conscious and healthy foods in schools is a priority
- There is an increasing demand for Halal certified products
- Singaporeans, eating out more and buying more convenience meals due to their busy lifestyles.
- Singaporeans also have a growing interest in buying frozen foods to reduce their grocery bills as they are generally 20% cheaper than fresh meat.
- Singapore is also a very multicultural country resulting in a variety of cuisines and cultural flavour preferences.
- As of 2018 the racial demographics are Chinese 74.3%, Malay 13.4%, Indian 9.1%, and other 3.2%. Of these people 14.3% are Muslim and 5.2% are Hindu.
- Singaporeans have become more concerned with knowing the sources of their food and around food sustainability

## Concept Development

### Biltong

One of our initial concepts was biltong to which we added horopito and kawakawa. We tested whether lamb was suitable for making biltong and the acceptability of this product with the target market. The expense of the lamb cut required and the negative response from our International student focus group led us not to continue with this concept.



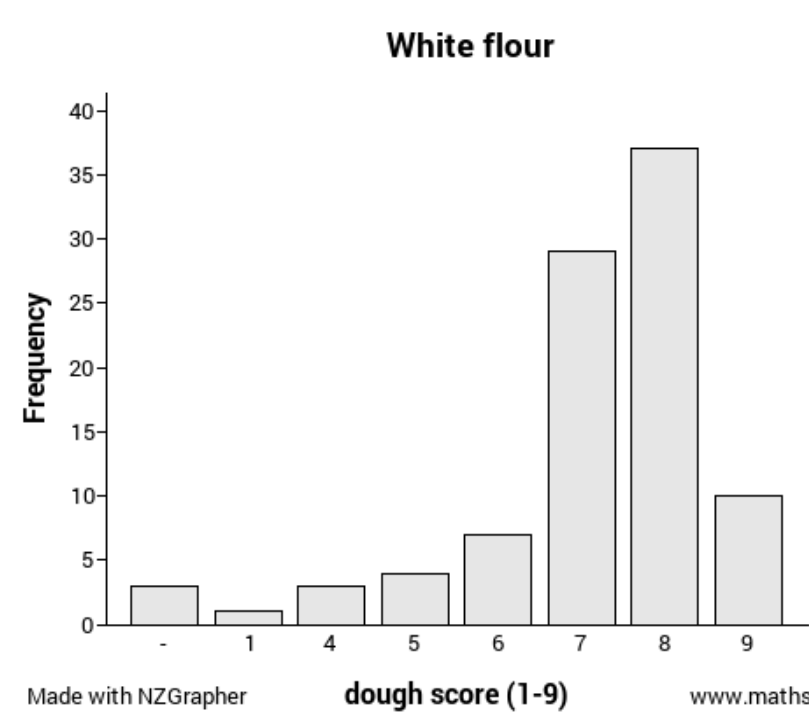
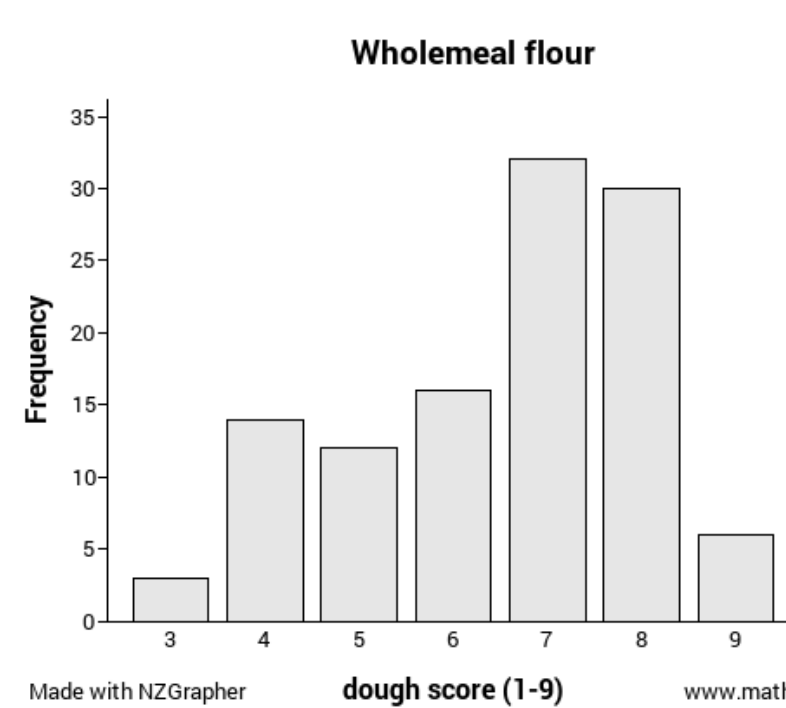
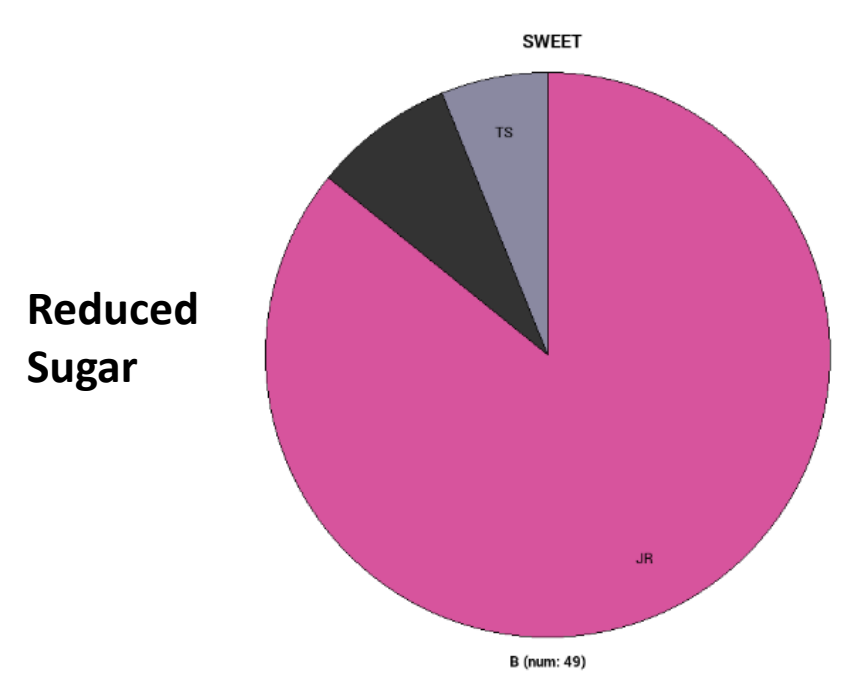
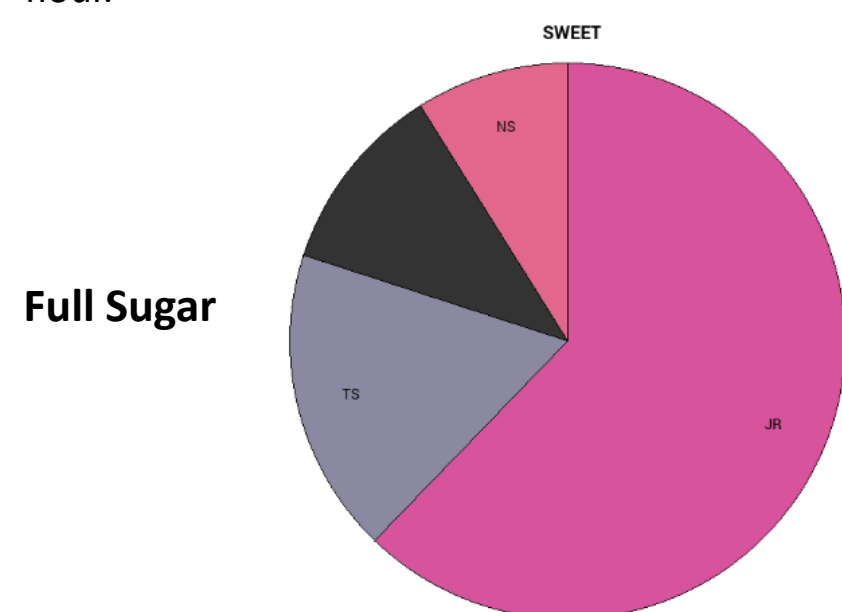
### Lamb Buns

We developed a filled steamed lamb bun blending traditional Asian and New Zealand flavours, designed to be a readymade frozen meal. During the development of this concept we optimised our lamb filling with the addition of kiwifruit and the use of lamb shoulder. We investigated using different flours for our bun.



## Sensory Testing

We conducted several sensory evaluations with Asian international student focus groups, while our largest sensory trialling took place during the school open evening where we tested our lamb filling and buns with parents and prospective students. The results were that the main preference was for reduced sugar and white flour.



### Stage Gate

- Focus on lamb filling as a convenience product
- Buns as a product for future development

## Prototype Development



Pulled Lamb Filling

Our final concept is a multi-purpose pulled lamb filling that can be used in a variety of different cuisines and is convenient for busy families with school age children that may not have the time to prepare a whole meal. Below is the testing that we did on our filling.

### Cooking and Marinating Testing

We investigated the action of Actinidin on our lamb when marinated overnight compared to when we added it directly to the pot. We saw a dramatic difference between the two. In conjunction we tested for optimum cooking time and found that for the kiwifruit marinated meat it was 2 hours at 150 °C.



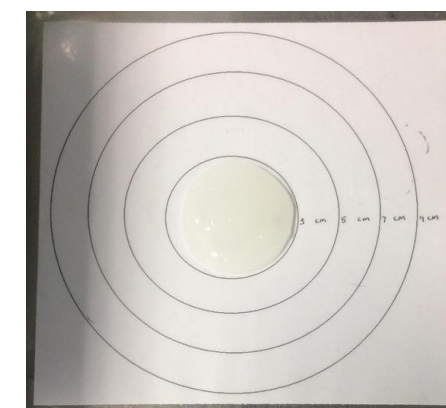
Unmarinated left, marinated lamb right



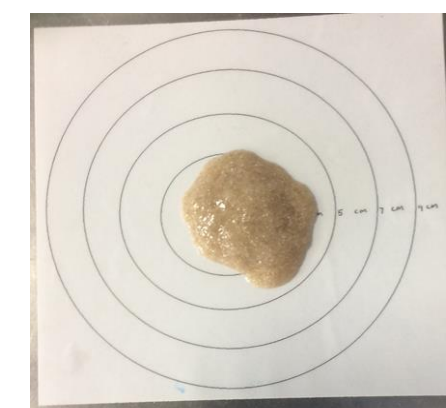
Kiwifruit pulp used as marinade

### Viscosity testing

We compared the gelling properties of chia seed and corn flour. We found that the proportion that was most similar to the corn flour gel was the 15 grams of ground chia to the 150g of water.



Corn flour gel



Chai seed gel

We ran tests to determine how different thickeners would react to being canned using a retort package. Chia seed was shown to be unsuitable when reheated.



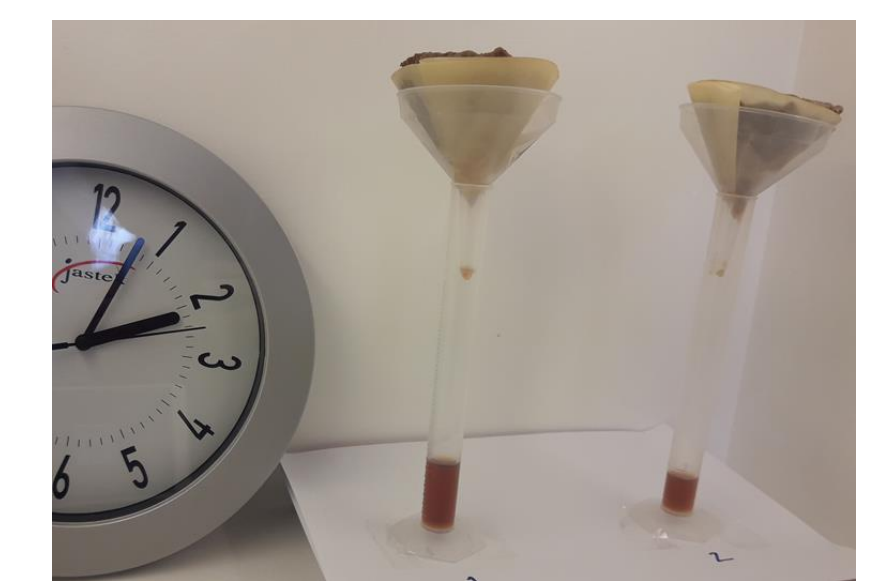
Thickened with chia seed



Thickened with corn flour

### Syneresis testing

We conducted a Syneresis test to compare the difference in water loss between chia seed and corn flour from frozen. At first the chia held water better but at the end the difference between the two evened out.



Timed syneresis testing

### Packaging

We are using retort packaging. Retort packaging is shelf stable and able to be shipped easily due to its flexible nature, it is also lighter than cans while the shelf life remains relatively the same. This retort canning method also allows consumers to re-seal the package after use. Our packaging had to be both attractive to the consumer and informative about our product. We advertise the New Zealand aspects of our product by using New Zealand iconography and attract the consumers eye through bright visuals.



## Further development

- For further development of a range of complimentary products to serve with our filling such as bao and roti. We have already developed our wholemeal bun and we could consider an activated charcoal bun as well.
- We could further increase the health benefits of our product by adding shredded vegetables and other flavours into the filling.
- A potential development is the use of our lamb filling as a commercial product in Singaporean schools. In order to do this we would develop our product to meet the Healthier Choice Symbol guidelines required in Singaporean school.

## Final Evaluation

Our product meets the brief by showcasing New Zealand lamb, horopito, kawakawa and kiwifruit while being suitable for busy working families. It provides a high protein and reduced sugar, Halal product. We have considered food safety and convenience by the use of retort packaging as well as the climate and demands from our market.



Thank you to these people:

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