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Sample assessment 2020

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Stimulus book

# Food & Nutrition

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## Research and development: Test kitchen report

A community market store is committed to providing a range of value-for-money foods to local community members. The store manufactures a range of healthy, ready-made foods. The store has identified a gap in the vegetarian and vegan consumer market, and the test kitchen has trialled three prototypes for a new product aligned to vegetarian and vegan consumer market trends. Use the data in this report to choose the prototype for the best solution.

The following prototype formulations were trialled:

- Formulation 1: a snack food — basil and yoghurt dip with vegetable crisps
- Formulation 2: a gourmet soup — spicy carrot and chickpea soup
- Formulation 3: a family-sized, ready-made meal — mushroom and bean rissoles with creamy almond and thyme sauce.

The store's current product lines include:

- single-serve snack foods — dried fruit and nut mixes, flavoured yoghurts
- salads — zucchini noodle salad with bacon, Vietnamese salad
- sandwiches — roast beef and spinach, egg salad
- seasonal fruit salad
- baked goods — fruit muffins, muesli bars
- chilled, ready-made, single-sized meals — prawn and chorizo paella, lasagne, ham-and-pineapple pizza, lamb casserole with vegetables.

### Results from investigation into vegetarian and vegan consumer market trends

- The vegetarian and vegan consumer markets make up 9.2% of the Queensland population. Queensland consumers are making conscious decisions to consume more plant-based proteins and fresh, natural, unprocessed food. From 2014 to 2018 there was an 11% increase in the market for vegetarian and vegan products.
- Some Queensland consumers identify as 'flexitarians', reducing the amount of meat they consume by following a mostly meatless diet.
- Consumers' budgets are a higher priority than their health aspirations in their decision-making.
- The snack food market is growing at a rate of 3% each year, with 66% of consumers snacking between meals.
- The trend for experimenting with new and exciting flavours continues. Consumers are more likely to experiment when purchasing foods not prepared at home or when eating away from home.
- The range of 'trustworthy' ready-to-eat and ready-made food products available for the vegetarian and vegan consumer markets is limited.

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Prototypes	Food components	Procedure	Packaging	Nutrition information panel			Sensory profiling data																				
<b>Formulation 1:</b> <b>Basil and yoghurt dip with vegetable crisps</b>	6.25 g basil 10 g pine nuts 10 mL olive oil 30 mL Greek-style natural yoghurt 10 g potato 10 g sweet potato 10 g beetroot oil for deep-frying	1. Process basil, pine nuts and olive oil. Add yoghurt and pulse to combine. 2. Portion dip into one half of container. Chill. 3. Thinly slice potato, sweet potato and beetroot. 4. Heat oil to 170 °C+, and immerse vegetables until golden and crisp. 5. Drain, cool and portion into remaining half of container. Chill.	Servings per package: 1 Serving size: 80 g Snack food, chilled, single-serve package \$3.80		Average quantity per serving	Average quantity per 100 g	<p style="text-align: center;">Response from profilers (50)</p> <p style="text-align: center;">Formulation 1</p> <p>Number of sensory profilers</p> <p>Legend: Appearance (solid grey), Taste (diagonal lines), Texture (cross-hatch)</p> <table border="1"> <caption>Formulation 1 Sensory Profiling Data</caption> <thead> <tr> <th>Category</th> <th>Appearance</th> <th>Taste</th> <th>Texture</th> </tr> </thead> <tbody> <tr> <td>Great</td> <td>25</td> <td>10</td> <td>25</td> </tr> <tr> <td>Good</td> <td>30</td> <td>10</td> <td>25</td> </tr> <tr> <td>Satisfactory</td> <td>0</td> <td>30</td> <td>0</td> </tr> <tr> <td>Fair</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	Category	Appearance	Taste	Texture	Great	25	10	25	Good	30	10	25	Satisfactory	0	30	0	Fair	0	0	0
				Category	Appearance	Taste		Texture																			
				Great	25	10		25																			
				Good	30	10		25																			
				Satisfactory	0	30		0																			
				Fair	0	0		0																			
				Energy	832 kJ	1040 kJ																					
Protein	3.5 g	4.4 g																									
Fat, total	17.8 g	22.3 g																									
– saturated	3.5 g	4.4 g																									
Carbohydrate	5.9 g	7.4 g																									
– sugars	3.9 g	4.9 g																									
Sodium	32 mg	40 mg																									
<b>Formulation 2:</b> <b>Spicy carrot and chickpea soup</b>	10 g onion 2 g garlic 2 g ginger 5 mL coconut oil 10 mL Indian-style curry paste 100 g carrot 85 g cooked chickpeas 125 mL vegetable stock 300 mL water salt and pepper to taste	1. Fry onion, garlic and ginger in oil for 5 minutes. Stir in curry paste and cook for 1 minute. Add carrot, chickpeas, stock and water. Boil and cook until carrot is tender and mixture has thickened. 2. Remove from heat and process. Season. 3. Portion into containers. Chill.	Servings per package: 1 Serving size: 345 g Gourmet soup, chilled, single-serve pouch \$4.20		Average quantity per serving	Average quantity per 100 g	<p style="text-align: center;">Formulation 2</p> <p>Number of sensory profilers</p> <p>Legend: Appearance (solid grey), Taste (diagonal lines), Texture (cross-hatch)</p> <table border="1"> <caption>Formulation 2 Sensory Profiling Data</caption> <thead> <tr> <th>Category</th> <th>Appearance</th> <th>Taste</th> <th>Texture</th> </tr> </thead> <tbody> <tr> <td>Great</td> <td>0</td> <td>15</td> <td>20</td> </tr> <tr> <td>Good</td> <td>0</td> <td>25</td> <td>15</td> </tr> <tr> <td>Satisfactory</td> <td>20</td> <td>10</td> <td>15</td> </tr> <tr> <td>Fair</td> <td>30</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	Category	Appearance	Taste	Texture	Great	0	15	20	Good	0	25	15	Satisfactory	20	10	15	Fair	30	0	0
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				Good	0	25		15																			
				Satisfactory	20	10		15																			
				Fair	30	0		0																			
				Energy	794 kJ	230 kJ																					
Protein	6.9 g	2.0 g																									
Fat, total	6.9 g	2.0 g																									
– saturated	4.5 g	1.3 g																									
Carbohydrate	190 g	5.5 g																									
– sugars	6.2 g	1.8 g																									
Sodium	1622 mg	470 mg																									
<b>Formulation 3:</b> <b>Mushroom and bean rissoles with creamy almond and thyme sauce</b>	150 g mushrooms 400 g tin mixed kidney, lima and butter beans 2.5 g dried thyme 250 g cooked brown rice 75 g plain wholemeal flour 6 g garlic 120 g onion 40 mL olive oil 20 g butter 250 mL almond milk 250 mL chicken stock 20 mL mustard 5 g salt 2.5 g pepper 25 g almonds, blanched	1. Process mushrooms. Transfer to bowl. 2. Process beans until smooth and add to bowl. 3. Add thyme, rice and flour. Combine. 4. Roll into 20 g portions. 5. Fry garlic and onion in oil and butter for 4 minutes. 6. Add rissoles and cook for 2 minutes. 7. Add almond milk, stock, mustard, salt and pepper and cook for 10 minutes. 8. Portion into containers. Top with almonds. Chill.	Servings per package: 4 Serving size: 400 g Ready-made meal, chilled, multi-serve package \$16.00		Average quantity per serving	Average quantity per 100 g	<p style="text-align: center;">Formulation 3</p> <p>Number of sensory profilers</p> <p>Legend: Appearance (solid grey), Taste (diagonal lines), Texture (cross-hatch)</p> <table border="1"> <caption>Formulation 3 Sensory Profiling Data</caption> <thead> <tr> <th>Category</th> <th>Appearance</th> <th>Taste</th> <th>Texture</th> </tr> </thead> <tbody> <tr> <td>Great</td> <td>30</td> <td>20</td> <td>15</td> </tr> <tr> <td>Good</td> <td>15</td> <td>25</td> <td>30</td> </tr> <tr> <td>Satisfactory</td> <td>5</td> <td>5</td> <td>5</td> </tr> <tr> <td>Fair</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	Category	Appearance	Taste	Texture	Great	30	20	15	Good	15	25	30	Satisfactory	5	5	5	Fair	0	0	0
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				Good	15	25		30																			
				Satisfactory	5	5		5																			
				Fair	0	0		0																			
				Energy	2008 kJ	502 kJ																					
Protein	16.0 g	4.0 g																									
Fat, total	21.2 g	5.3 g																									
– saturated	2.4 g	0.6 g																									
Carbohydrate	49.6 g	12.4 g																									
– sugars	5.6 g	1.4 g																									
Sodium	944 mg	236 mg																									

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