NF7061- Food Product Development and Processing

CW-2 Product Development Dossier

VegoTellos

PRESENTS

Beet- Grape Cucu-Melon

Ashwin Rajesh

Asvinraj Sathiyaseelan

London Metropolitan University

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Product Description

Introducing our unique vegetable and fruit jelly – a delightful fusion of imperfect produce expertly crafted into delicious spread. Embrace sustainability with each sweet spoonful, as we transform cosmetically challenged veggies and fruits into a flavourful treat. This jelly not only tastes fantastic but also supports the fight against food waste. Enjoy the vibrant medley of wonky goodness in every cup.

The Vego Jellos is a 100% natural and proudly a vegan product. We utilize wonky vegetables as raw materials, reducing product cost and combating food waste. A 110g jar of cucumber and watermelon jelly is available for £0.60, while the beetroot and grape variant is priced at £0.75.

Our primary audience includes children and the elderly. For kids averse to vegetables and fruits, our colorful and tasty jelly, infused with extract from a variety of produce, is a delightful alternative. For the elderly who struggle with chewing, our jelly provides a convenient and nutritious solution to their dietary needs.

Product Composition

Ingredients List

For Beet- Grape: Water, Beetroot Juice (23%), Red Grapes Juice (23%), Agave syrup, Agar powder, Permitted Natural flavours, Permitted Natural colours, Ascorbic acid powder.

For Cucu-Melon: Water, Cucumber Juice (23%), Watermelon Juice (23%), Agave syrup, Agar powder, Permitted Natural flavours, Permitted Natural colours, Ascorbic acid powder.

Nutritional information:-

Nutrition Facts

Servings: 1 — 1 serving = 110g

Amount per serving

Calories 175

	% Daily Value*
Total Fat 0 g	0 %
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 322mg	14%
Total Carbohydrate 42.8g	16%
Dietary Fiber 4.8g	17%
Total Sugars 21.6g	
Protein 2.7g	
Vitamin 20mg	22%
Calcium 256mg	20%
Iron 2mg	9%
Potassium 280mg	6%

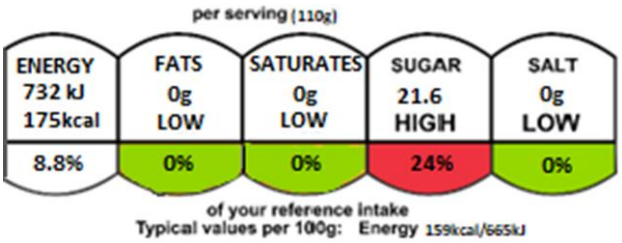


Figure 1: Nutritional information calculated using Very well fit online software.

Product attributes:

- Vegan, typically contain plant-based ingredients such as agar-agar instead of gelatine.
- Free from allergens.
- Jellies have the smooth, even, and aesthetically pleasant texture.
- Made using sugar alternatives such as agave syrup.
- Maintain a consistent quality throughout the process.
- Low in calories.
- Stable at ambient temperature.
- Consider eco-friendly packaging option.
- Store in a cool, dry place, away from direct sunlight and heat.

Manufacturing & Scale Up

Ingredients and Suppliers

Sr No	Ingredients	Use In Process	Specification	Supplier	Cost	Quantity
1	Cucumber	Fresh Juice	Wonky fresh whole vegetable	Watts Farms	£1.60	1kg
2	Beetroot	Fresh Juice	Food Grade, Fresh Whole vegetable, Without Defects	Watts Farms	£1.20	1kg
3	Watermelon	Fresh Juice	Food Grade, Fresh Whole fruit, Without Defects	C & M Watermelon Imports LTD	£2.99	1pc
4	Red Seedless Grapes	Fresh Juice	Food Grade, Fresh Whole fruit, Without Defects	Ocado Red Seedless Grapes	£3.60	1kg
5	Vitamin C Ascorbic Acid Powder	Used as Preservative to avoid spoilage	Food grade, 100 % pure, supports immune system, Anti-oxidant	Your Supplements	£5.99	100g
6	Bright Green Food Color	Used to make product more attractive, appealing and informative	Food grade, 100% pure	Dr. Oetker (UK) Ltd	£1.40	15g
7	Watermelon Essence	It is used to impart the distinct and refreshing flavor of watermelon	Food grade, 100% pure, natural flavoring substances	GALAXEJUICE	£3.99	10ml
8	Cherry Essence	It is used to add intense flavor of cherry in the product	Food grade, 100% pure, Natural flavoring substance	Honeyberry International LLP	£6.99	30ml
9	Agar Powder	Gelling Agent	Food grade,100% pure	Special Ingredients Ltd	£5.69	100g
10	Agave Syrup	It is used to add natural sweetness in the product	Food grade,100% natural, suitable for vegans and vegetarians	Clarks UK Ltd	£2.65	250ml
11	Packaging material	Used to pack the product	Plastic- disposable	Amazon.co.uk	£11.95	200pc

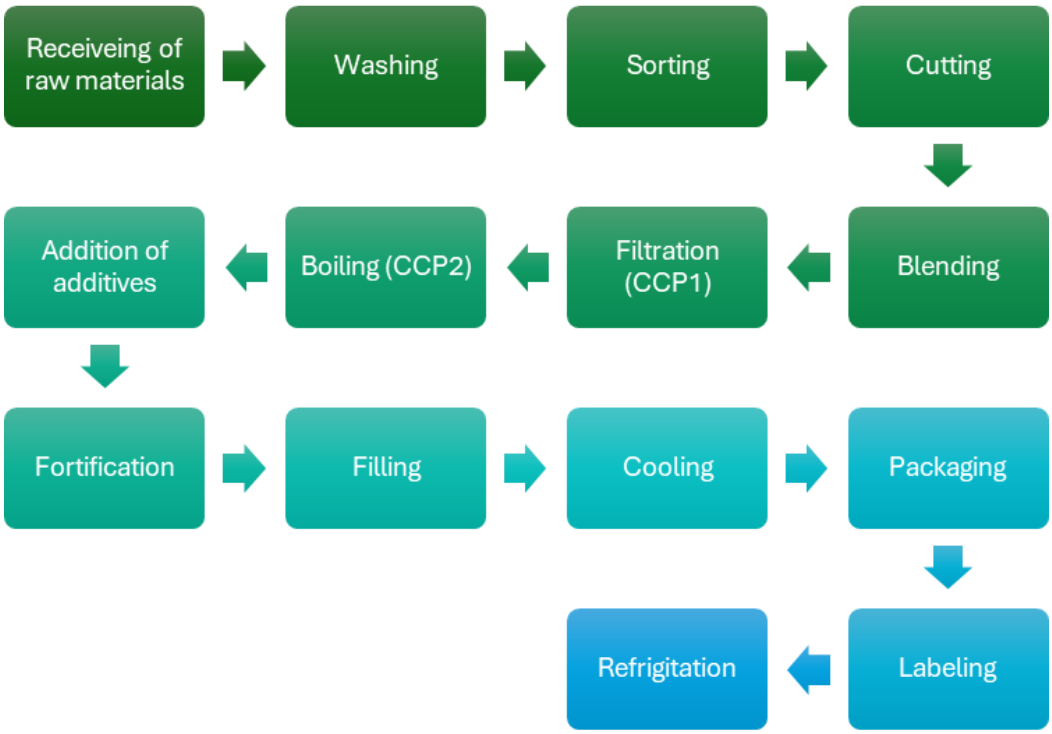
Product costing per standard batch (cucumber and watermelon)

Ingredient	Amount (g/ml)	Price/(g/ml)	Cost
Cucumber Juice	75ml	£0.004	£0.30
Watermelon Juice	75ml	£0.005	£0.37
Water	200ml	-	-
Vitamin C Ascorbic Acid Powder	0.06g	£0.0599	£0.03
Bright Green Food Color	0.3ml	£0.093	£0.03
Watermelon Essence	0.3ml	£0.399	£0.12
Agar Powder	4.5g	£0.0569	£0.27
Agave Syrup	54ml	£0.0106	£0.19
Packaging material	3pc	£0.05975	£0.18
Total Batch Weight	368.37g	Total Cost Per Batch	£1.49

Product costing per standard batch (Beetroot and Grapes)

Ingredient	Amount (g/ml)	Price/(g/ml)	Cost
Beetroot Juice	75ml	£0.004	£0.3
Grape Juice	75ml	£0.0144	£1.08
Water	200ml	-	-
Vitamin C Ascorbic Acid Powder	0.06g	£0.0599	£0.03
Cherry Essence	0.05ml	£0.233	£0.01
Agar Powder	1.5g	£0.0569	£0.09
Agave Syrup	18ml	£0.0106	£0.19
Packaging material	3pc	£0.05975	£0.18
Total Batch Weight	369.57g	Total Cost Per Batch	£1.88

Manufacturing Process



Equipments

Blender	Weighing and mixing system
	

Additives addition system	Filling machine
	

Figure 2 Industrial scale Equipments

Food Safety and HACCP

Food Safety and Quality Statement

1. We are committed to manufacture high quality products which can satisfy the expectations of our customers while continuing to improve.

2. We continually improve our performance by providing training and education to our employees and suppliers through effective communication and achieving set goals relevant to a strategic plan.

a. Reviewing customer complaints and narrowing down to the root cause to implement corrective action to prevent future occurrences.

b. Recurring analysis of all the unit operations and employees to ensure the protocols of Investigating non-conformances and customer complaints to identify the root causes and take corrective actions to prevent recurrence.

3. We comply with the needs of both internal and external parties by considering their relevant issues as well as applicable legal requirements.

4. Our processes are designed according to the standards provided by authorities and the

quality of the process and products are held up to these standards.

5. We understand that many of our consumers have allergies to specific ingredients and we take necessary steps and protocols to make our products safe and clearly include the appropriate labelling.

Terms of Reference

This linear HACCP plan covers the processing and handling of raw and cooked products manufactured by Vege Jellos.

The HACCP plan starts with the approval of all suppliers and ends with the distribution of the products in Vege Jellos's own temperature-controlled vehicles to customers.

The HACCP will cover final product safety and will look at the following hazards:

Physical	**D**ust particles/ foreign particles, **plant husks** and stems.
Chemical	Cleaning chemicals and pest control substances
Biological	Pathogenic microorganisms (E coli. , Salmonella), Fungus spp. and Mold.
Allergen	-

Regulations & codes of practice the company comply with

The company complies with the following regulations:

1. Regulation (EC) No 852/2004 on the hygiene of foodstuffs.
2. Regulation (EC) No 1169/2011 on provision of food information to customers.
3. Trade Description Act 1968 (UK legislation) for prevention of false and misleading information on the label.
4. Regulation (EC) No 625/2017 to ensure the application of food and feed law.
5. Regulation (EC) No 396/2005 for stating maximum residue levels of pesticides in or on food.
6. Regulation (EC) No 1308/2013 for establishing a common organization of the markets in agricultural products.
7. Regulation (EC) No 1333/2008 concerning food additives.
8. Regulation (EC) No 1924/2006 on nutrition and health claims made on foods.
9. Regulation (EC) No 178/2002 for general principles and requirements of food laws.

10. Regulation (EC) No 2023/2006 on Good manufacturing practice for materials and articles intended to come into contact with food.

The following codes of practice/guidance documents were used in developing this HACCP plan:

- Codex Alimentarius Food Hygiene 4th Edition
- Food Safety Standards Agency (FSA) Guidelines
- BRCGS Food Safety Issue 9
- ISO 22000: 2018

HACCP Team

Job Title	**Contribution**
Production Manager	Knowledge about the process, production line
Technical Manager	Food safety Head looks over all the aspects.
Quality Assurance/Control Manager	Monitors quality standards and aligns HACCP plan with quality control procedure
Documentation specialist	Maintains accurate records and documents
Food scientist	Validating critical limits and identifying potential hazards
Lab technician	Follow and assist procedure for regular lab-based analysis
Trained line staff	To report from every department like packaging, processing, storage and raw material receiving.

Critical Control Points and Control Measures

Step number	Process step	Controls	Critical limit (CCP only)	Monitoring			Corrective Actions
				Responsibility	Procedure and Record	Frequency	
1	Receiving of raw materials	PRP		Quality Assurance manager	Check the supply batch meet the raw material standards.	Every batch	Reject and order for new batch.
2	Washing	PRP		Trained line staff	Ensure proper cleaning of fruits and vegetables.	Every batch	Repetition of process.
3	Sorting	PRP		Trained line staff	Ensure to sort out rotten raw materials.	Every batch	Repetition of process
4	Cutting	PRP		Production manager	Check the equipment efficiency.	Weekly	Stop the equipment and schedule for servicing.
5	Blending	PRP		Production manager	Check the equipment efficiency.	Weekly	Stop the equipment and schedule for servicing.

Step number	Process step	Controls	Critical limit (CCP only)	Monitoring			Corrective Actions
				Responsibility	Procedure and Record	Frequency	
6	Filtration	CCP 1	100 microns	Quality Assurance manager	Checking the filtrate collection. Noted in batch records	Daily	Pass the juice through filter again.
7	Boiling	CCP 2	105°C for 5 minutes.	Quality Assurance manager and Lab technician	Temperature control and sampling for microbial analysis. Batch records.	Every batch	Regulate the temperature and discard if plate count is high.
8	Addition of additives	PRP		Food scientist	Ensuring proper amount is added according to the recipe	Every batch	Regulate the ratio of ingredients according to the issue.
9	Fortification	PRP		Food scientist	Ensuring proper amount is added according to the standards.	Every batch	Regulate the ratio of ingredients according to the issue.

Step number	Process step	Controls	Critical limit (CCP only)	Monitoring			Corrective Actions
				Responsibility	Procedure and Record	Frequency	
10	Filling	PRP		Production manager	To ensure efficiency of the equipment.	Daily	Report to Production manager and schedule servicing.
11	Cooling	PRP		Trained Line staff	Maintaining the temperature of the equipment at $25°C$.	Every batch	Regulate the temperature.
12	Packaging	CP		Quality Assurance Manager	Ensure proper sealing of the product.	Daily	Discard the defective product and schedule for servicing.
13	Labelling	PRP		Documentation specialist	Checking proper labelling on the package according to the standards	Every batch	Discard the defective products.
14	Refrigeration	CP		Production manager	Maintain 4°C and regulate batch wise distribution. Batch and storage records.	Every batch	

Hazard separation: -

Physical contaminants will be removed in Filtration and microbiological contaminants will be removed in boiling process. Chemical contaminants will be prevented by following pre-requisite program for cleaning and hygiene.

Packaging

The packaging container is made up of recyclable Polyethylene Terephthalate material with printed label. The product will be palletized for distribution and will be sold separately.

Storage conditions ambient room temperature or refrigeration.

Jelly cup capacity 120ml.

Figure 3 Product label panels

Figure 4 Products

Business plan and Marketing

Unique Selling point

Introducing our Vegan Vegetable Jellies, a delectable and nutritious treat suitable for both children and senior citizens on soft food diets. Crafted from natural ingredients and devoid of animal products, our jellies promise a delightful burst of flavors coupled with health benefits.

Marketing strategy

There are many different marketing strategies for building brand awareness according to the relevant target audience.

- Television advertisements in kids channels and in-school or club campaigns to attract young generation.
- Campaigns in care homes, collaborate with healthcare professionals to endorse the suitability for soft food diets.
- Targeted sampling by distributing samples at community events, schools, and senior living centers.

Target consumers

Covid pandemic has created a lot of awareness and put the importance of nutrients among the parents of young children, the need of Vitamin C in their diet to maintain immunity (Power et al., 2023 and Holt and Murray, 2022). Our product is fortified with Vitamin C and rich in other vitamins through natural juices which can help boost immunity among the children.

Meanwhile, in case of elderly population the immune response gradually decreases with age (Arı, Odabaşı and Erbaş, 2022). The reason care homes and care takers try to provide them healthy nutritious treats to cope with their loss of appetite. This is a potential market for the product due to its soft texture, flavorful mouthfeel and high nutritional value.

References

Arı, M., Odabaşı, M. and Erbaş, O., 2022. The Immune-Inflammatory Responses in the Elderly. Journal of Experimental and Basic Medical Sciences, 3(2), pp.140-147.

Holt, L. and Murray, L., 2022. Children and Covid 19 in the UK. Children's Geographies, 20(4), pp.487-494.

Power, M., Doherty, B., Pybus, K.J. and Pickett, K.E., 2023. How COVID-19 has exposed inequalities in the UK food system: The case of UK food and poverty. Emerald Open Research, 1(10).Ehiri, J. E., Morris, G. P., and McEwen, J. (1995). Implementation of HACCP in food businesses: the way ahead. Food Control, 6(6), 341–345. doi:10.1016/0956-7135(95)00045-3.