

## CHAPTER IV

### RESULTS AND DISCUSSION

#### 4.1 Product Results

The main ingredients in this gluten free oats noodles are oats, rice flour and tapioca starch. Oats has a lot of benefits and has a high value to human body, rice flour has the role of resisting starch as fiber rice flour also help lower blood cholesterol levels because propionate, a product of resistant starch fermentation, can inhibit the activity of the HMG-CoA reductase enzyme, which plays a role in the synthesis of cholesterol in the blood. Tapioca takes longer for the body to break down into sugar when compared to other grains or carbohydrates. This might help lower blood sugar levels after eating. The minerals in tapioca can provide important health benefits.

#### 4.2 Nutrition Facts

##### 4.2.1 Nutritional Table

The nutritional value of Quick Oats is as is follows:

**Table 4.3** Nutrition value of Quick oats per 40 gr

Calorie (kcal)	150
Fat (g)	3
Carbs (g)	27
Protein (g)	5
Sugars (g)	1

Oats consists of a large amount of total proteins, carbohydrates, i.e., starch crude fat, dietary fiber (nonstarch), unique antioxidant, and vitamins and minerals ( Varma *et al.*, 2016)

**Table 4.4** Nutrition value of rice flour per 40 g

Calorie (kcal)	144.5
Fat (g)	0.6
Carbs (g)	31.8
Protein (g)	2.4

**Table 4.5** Nutrition value of tapioca starch per 40 g

Calorie (kcal)	149.8
Carbs (g)	37.8
Protein (g)	2.4
Sugars (g)	1.4

Tapioca starch contains no fat or cholesterol, which makes it a healthy choice for those watching their dietary cholesterol and saturated fat intake. ( Begum *et al.*, 2022).

#### 4.2.2 Nutrition Calculation

**Table 4.6** nutritional value of ingredients in the recipe for gluten – free noodle

<b>Ingredients</b>	<b>Calories (kcal)</b>	<b>Carbohydrate (g)</b>	<b>Protein (g)</b>	<b>Fat (g)</b>	<b>Sugar (g)</b>	<b>Sodium (mg/100g)</b>
Oat flour (150 g)	566	99.9	19.6	9.6		
Rice flour (100 g)	375	82.6	6.1	1.4		
Tapioca starch (100 g)	385	97.2	0.2		3.6	1
water						
Salt (1.4 g)						581
Garlic (90 g)	134.23	29.78	5.73	0.45	0.9	15
Shallot ( 32 g )						
Vegetable oil (75 ml )	613.64			68.18		
Sweet soy sauce (15 g )	31.5	7.7	0.7		7	
Soy sauce (10 g)	5	0.5	0.8	0.1		
White pepper	3.6	0.8	0.1			
Mushroom stock	20	2	0.3	0.015		150

powder (10 g)						
White button mushroom (100 gr )	15	0.9	3.8	0.6		
<b>TOTAL</b>	2,148.97	321.38	37,33	80,34	11,5	747
				5		

#### 4.2.3 Nutrition Label

<b>Nutrition Facts</b>	
<b>Portion Size</b>	131 g
<b>Amount Per Portion</b>	
<b>Calories</b>	<b>423</b>
% Daily Value *	
<b>Total Fat</b> 15g	<b>19 %</b>
Saturated Fat 1.8g **	9 %
<b>Sodium</b> 191mg	<b>8 %</b>
<b>Total Carbohydrate</b> 68g	<b>25 %</b>
Dietary Fiber 3.3g **	12 %
Sugar 2.2g **	
<b>Protein</b> 6.7g	<b>13 %</b>
Calcium 1.3mg **	0 %
Iron 0.1mg **	1 %
<small>* The % Daily Value (DV) tells you how much a nutrient in a serving of food contribute to a daily diet. 2000 calories a day is used for general nutrition advice.  ** Amount is based on ingredients that specify value for this nutrient and 0 for those that don't.</small>	

**Figure 4.5** Nutrition Fact of Gluten free oats noodle

## **4.3 Food Safety and Packaging**

### **4.3.1 Processing and Storage Temperature**

Oats noodles consist of several operation units that are sorted in specific order. Those operation units are grinding, mixing, shaping, and cooking/boiling. Each of operation units have individual intentions in order to prepare oats noodle to proceed to the next step. Not only the processing units, but also the ratio and quality of ingredients will determine the end-product quality and its nutritional value (Mursidi et al., 2019). The best temperature to store the half-cooked noodles is in chiller temperature which is 1 to 7 C. And for the cooked noodle its best to be consumed right after the cooking process or room temperature.

### **4.3.2 Shelf Life**

This product has a short shelf life because the ingredients for this product is easily to get contaminated with bacteria. To prevent from easy spoilage, storing correctly and clean surrounding area like the utensils for the product making must be sterilized. Such high moisture content will provoke the enzyme and microbial activity that make noodles can only be stored for around 27-33 hours in room temperature. The signs of deterioration are initiated by the formation of sludge on the surface, changing of texture and colour, and production of off-odour (Karneta *et al.*, 2013) Otherwise, storing wet food like noodles in cold temperature (5-10 C) will prolong its shelf life to 43 hours, and with the vacuumed packaging may reach 51 hour (Pratama *et al.*, 2016).

### 4.3.3 Product Packaging

Food packaging food is an integral component of food industry and helps to store food and beverages in hygienic manner (Gupta *et al.*, 2017). Food packaging is used to protect the food along the supply chain. Otherwise, the handling of food product could be pricey and inefficient. Moreover, food packaging is to preserve the food from possible hazards; such as physical, chemical, or even microbiological; that can impact on quality and safety of the food itself. Selecting food packaging material has to consider cost, quality of product, and its ability to protect the food (Alamri *et al.*, 2021)

This gluten free oat noodle is a ready-to-eat food, since this will be marketed online and made by order. So the packaging that will be used is plastic material bowl that is safe to be microwave and leak proof and material that do not cause health hazard which is Polypropylene. FDA has approved its use as a food container material, and there are no known cancer-causing effects associated with polypropylene (Yellayi *et al.*.,2020).

Polypropylene plastic bowl with dimensions of 15 cm x 6.5 cm (750 ml), respectively.



**Figure 4.6** Polypropylene Plastic Bowl 750ml

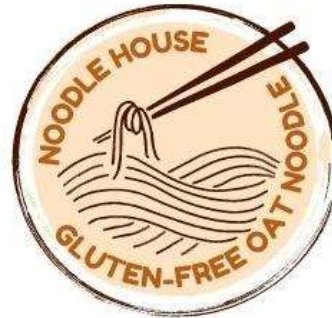


Figure 4.7 Logo

## 4.4 Financial Aspects

### 4.4.1 Product Cost (Variable Cost, Overhead Cost, Fixed Cost)

Product cost is calculated based on the total of all cost per month. The costs consist of labour cost, raw material cost, packaging cost, and utility cost. The raw material cost counted for 10 recipes per day or 30 portion per day. The working days is 5 days in a week.

### 1. Start-up Capital

**Table 4.7** Start-Up Capital

<b>Tools and Equipment</b>	<b>Quantity</b>	<b>Price (/unit)</b>	<b>Sub total</b>
Bowl	2	Rp 6,000,00	Rp 12,000,00
Digital scale	1	Rp 75,000,00	Rp 75,000,00
knife	1	Rp 50,000,00	Rp 50,000,00
Cutting board	1	Rp 35,000,00	Rp 350,00,00
Noodles machine	1	Rp 125,000,00	Rp 125,000,00
Sauce pot	1	Rp 120,000,00	Rp 120,000,00
Wooden spatula	1	Rp 20,000,00	Rp 200,00,00
Sauce pan	1	Rp 180,000,00	Rp 180,000,00
Blender	1	Rp 200,000,00	Rp 200,000,00
<b>TOTAL</b>			<b>Rp 1,312,000,00</b>

### 2. labour cost

**Table 4.8** Labour Cost

<b>Occupation</b>	<b>Personnel</b>	<b>Salary (/month)</b>	<b>Sub total</b>
Cook helper	1	Rp. 2.000.000	Rp 2.000.000
<b>TOTAL</b>			<b>Rp 2.000.000</b>

### 3. Packaging Cost

**Table 4.9** Packaging Cost



<b>Packaging</b>	<b>Quantity</b>	<b>Price (/unit)</b>	<b>Sub Total</b>
PP Plastic Bowl	30 pcs	Rp 1,000 /pcs	Rp 30,000
Plastic bag	30 pcs	Rp 30,000 /50pcs	Rp 18,000
spork	30 pcs	Rp 10,000 /30pcs	Rp 10.000
<b>TOTAL (/day)</b>			<b>Rp 58,000</b>
<b>TOTAL(/month)</b>			<b>Rp 1,160.000,00</b>

#### 4. Utility Cost

**Table 4.10** Utility Cost

<b>Facility</b>	<b>Quantity</b>	<b>Price (/unit)</b>	<b>Sub Total</b>
Water	2m <sup>3</sup>	Rp, 2,100	Rp, 4,200.00
Gas	50gr	Rp, 188.000	Rp 3.133,00
<b>TOTAL (/day)</b>			Rp 7,333,00
<b>TOTAL (/month)</b>			Rp 161.326,00

#### 5. Raw Material Cost

**Table 4.11** Raw Material Cost

<b>Ingredients</b>	<b>Quantity</b>	<b>Price (/unit)</b>	<b>Sub total</b>
Quaker rolled oats	1500 gr	Rp 48.000 /800g	Rp 90.000
Rice flour	1000 gr	Rp 7.000/500g	Rp 14.000
Tapioca starch	1000 gr	Rp 7.000 /500g	Rp 14.000
Boiling water	2500 ml		Rp
Salt	14 gr	Rp 10.000/ kg	Rp 140
garlic	30 pcs	Rp 500/pcs	Rp 15.000
shallot	40 pcs	Rp 550/pcs	Rp 22.000

Vegetable oil	40 tbsp	Rp 30.000/L	Rp 18.000
Sweet soy sauce	10 tbsp	Rp 28.000/550ml	Rp 7.000
Soy sauce	10 tbsp	Rp 28.000/550ml	Rp 7.000
White pepper	2.5tsp	Rp 13.000/600ml	Rp 700
Mushroom stock powder	100 gr	Rp 90.000/kg	Rp 9.000
Scallion	10 pc	Rp 1.000/pcs	Rp 10.000
White button mushroom	80 pcs	Rp 500/pcs	Rp 40.000
<b>TOTAL (/day)</b>			<b>Rp 246.840</b>
<b>TOTAL (/month)</b>			<b>Rp. 4.936.800</b>

#### 6. Total Cost

Fixed cost = labour cost

Variable cost = Raw material cost, Packaging cost and utility cost

Total cost (/month) = labour + Raw material + packaging + utility

= 2.000.000 + 4.936.800 + 1.160.000 + 161.326

= **Rp 8.258.126**

#### 4.4.2 Selling Price

Product price

= Total cost (/month): total products units (/month)

= 8.258.126: 600

= Rp 13.736.54 /portion

Product selling price

$$= \text{product price} + (\text{product price} \times \text{profit percentage})$$

$$= 13.736.54 + (13.736.54 \times 150\%)$$

$$= 13.736.54 + 20,604.81$$

$$= 34,341.35$$

$$= \mathbf{34,500.00}$$

## CHAPTER V

### CONCLUSION AND SUGGESTION

#### 5.1 Conclusion

These day people are looking forward the innovation of healthy food. This gluten free oat noodle fulfils the global demand and also a new innovation product. Not only its healthy the ingredients are high in nutrition. And people with specific medical condition that cannot eat gluten food can now enjoy this gluten free noodle. Furthermore, the utilization of oatmeal as the main ingredients in making gluten free noodle has a wide market. Typical noodles cannot be consumed by people who are following vegetarian and/or vegan diet. However, since the existence of this gluten free noodle, they can also now enjoy it. This means that gluten free oats noodles have even larger market among the customers. This gluten free oats noodles have total 423 calories (/131g). Labelling and logo are informative and easy to be understood so costumer know the ingredients of the products and nutrition value of the product. Every one portion of the product is sold at Rp 34,500.00

#### 5.2 Suggestion

Gluten free oats noodle requires safe and proper packaging to keep it in a good quality and shapes during the supply chain. Since, gluten free oat noodle is considered as high-moisture food, its shelf-life is not that long. Especially its about to start to grow in international market trading platform, it needs to be kept as long as possible, so its quality is not fading through time.