**OBJECTIVE AND BACKGROUND**

Objective: To design and develop a plan to mass produce artisan-style dark chocolate bars, appealing to customers in a local market, with optimal quality in a zero-discharge plant. To emphasize sustainability and propose a profitable enterprise.

Background: 
- Chocolate is a popular snack, dessert, and holiday item with a global consumer base. 
- Dark chocolate has nutritional benefits that attract consumers.

**IMPACT AND SUSTAINABILITY**

- Fairtrade focus to ensure farmer wellbeing and sustainability of growing practices.
- Cocoa farming provides jobs for 5 million people, especially those looking to find work after leaving school.
- 7% increase in global cocoa production rate of 7% in the next 6 years.

**MARKET ANALYSIS**

- Globally, the chocolate market is valued at $103 billion with a projected growth rate of 7% in the next 6 years.
- 67% of adults and 90% of youths purchase chocolate regularly.
- Target market is the population of Indianapolis, especially those looking to shop locally.

**UNIT FUNCTION**

**FUNCTIONAL ANALYSIS**

- Unit Operation: Function, Relation To Goal

<table>
<thead>
<tr>
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<tr>
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<td>Decrease moisture and develop flavor</td>
<td>Dry bean and promote flavor profile</td>
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<tr>
<td>Finishing</td>
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<td>Improve texture</td>
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<tr>
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<tr>
<td>Roaster</td>
<td>Insulation Thickness: 1.5 - 2 cm</td>
</tr>
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<td>Conche</td>
<td>Agitation diameter: 6.55 - 0.7 m</td>
</tr>
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<td>Kibble &amp; Winnow</td>
<td>Temperature: 65.5°C, 20°C</td>
</tr>
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<td>Mold &amp; Package</td>
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**CONCLUSION**

**EXPERIMENTATION**

**INGREDIENTS**

- 1. Raw cacao beans
- 2. Cocoa butter
- 3. Granulated sugar
- 4. Soy lecithin powder

**Experimental Design Variables**

- Recipe (% Cacao)
- Roasting Time
- Cooling Time
- Tempering Temperatures
- Conching Time
- Cooling Temperatures

**Quality Testing**

- Temperature reading, moisture content, power requirement, sensory analysis

**THREE IMPACTS**

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