

Thesis Project Portfolio

Liquor-Based Canned Cocktail Production

(Technical Report)

The Detrimental Effects of the Fining Industry Environment on Worker Psychology

(STS Research Paper)

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Executive Summary

Creating memorable experiences for a consumer can be difficult. For fine dining restaurants, this association requires amazing service and more importantly, high-quality food. The chef must envision a creative menu and execute it consistently so the patron can have an unforgettable experience. Subsequently, perfection creates pressure on the line cooks who are required to create the dish. If they are unable to replicate the chef's vision, they may be punished severely, creating even more stress. This work environment is unhealthy for the cook, which could lead to problems like loss of passion, substance abuse, or self-harm. The STS paper contained in this portfolio finds solutions to achieve a noteworthy experience while also hosting a healthy workplace. For hard seltzer, such as White Claw, sales are growing at a much faster rate than beer sales, however, most of these seltzers are malt-based, which contain an unpleasant aftertaste. Since many people associate this distasteful flavor with seltzers, creating a new product would be beneficial for the growing market which would stand out from your commonly malt-based seltzers. The technical report contained in this portfolio creates a product with a liquor-based seltzer and determines the economic viability so consumers would be able to distinguish seltzers away from malt-based products.

To remedy the malt-based seltzer aftertaste and to capitalize on the growing market, our team designed a process to develop a liquor-based canned cocktail, fermented with sugarcane and molasses. The goal of this technical project was to produce 500,000 gallons of alcoholic product, which will be separated into 12 oz cans and sold in three different flavors: lemon-lime, cranberry, and strawberry. Based in Raleigh, North Carolina, it will be sold in cases of 12 at a projected scale of approximately 444,000 cases a year. High-gravity fermentation of yeast, followed by fractional distillation, flavoring, carbonation, and canning is the basis of the design where fractional distillation was modeled in Aspen Plus v12. Through an economic analysis, this

project considers raw materials, utilities, labor, land, and equipment costs, which are determined through Capcost. Given the plant will run for 20 years, a discounted gas cash flow returns on investment determined this project is economically viable and re-creatable.

While many consumers perceive fine dining cuisine to be an exquisite and positive experience, there is a much darker side to this industry many people are unaware of. Recently, many chefs have spoken out about the amount of pressure and stress placed on them while working at these establishments. From the long work hours to the verbal and physical abuse and highest levels of expectation, these all build up to take a toll on the workers, both the front-of-house and back-of-house staff. This level of perfection holds all these workers to a certain standard which they must perform nearly perfectly. The question begs whether the standard is sustainable for the workers and for the industry itself. This research paper discusses the conversation between the environment and the infrastructure in fine dining by using a network analysis from Actor-Network Theory to determine a potential shift in this profession. The network analysis looks at connections between the history, the industry standards, and influencing characters in the industry to help build a discussion. With this conversation, there would be a light shined on the problem to help remedy these harsh work conditions.

While working on the canned cocktail project as well as the analysis of the fine dining industry, I realized how important attention to detail is. During the STS project, I only knew the surface level of the severity of the problem in the industry. Through the research and the anecdotal accounts, there are still many stories being unheard. The problem makes the concept of fine dining unstable in the future, where Noma is a great example; the environment is too unhealthy and unsustainable. Noma was regarded as the best restaurant for 4 years, yet their unsustainable work conditions will result in their shutdown in 2024. Simply shedding light on

the toxicity would be a great jumpstart on starting a new chapter for the culture. People can still enjoy good food while having a safe workplace. For the technical project, I did not realize how much planning is required to open a processing plant. As I went through each process, more parameters to plan arose; each pump requires a driver, the cost of equipment drastically differs from year to year; waste needs to be managed based on the composition and quantity. Ensuring everything is accounted for when working on a project can be applicable to everyday work life as well as school.