Business Plan

Fresh Box LLC
Home Food Preservation

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EXECUTIVE SUMMARY

HOME FOOD PRESERVATION SYSTEM

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Address: 203 Crimmons Cr, Cary, NC, 27511

CEO: Allison Fairbank

Founded: 2014

Amount and Type of Financing Sought: $500,000 equity

Funding Stage: Early Stage

Use of Funds: Product Development, Testing, Manufacturing, and Business Development

Business Description: The average American family of four wastes around $2,000 annually on uneaten food. Fresh Box reduces risk and costs from spoiled foods for the home consumer. The Fresh Box system keep's food fresh up to 6x longer, while keeping its' natural taste, texture, and nutritional content. Our target market is consumers, ages 25-64, who buy fresh local produce and care about their food's quality and businesses looking for lower cost, increased savings, and healthier, fresher foods.

Product/Market Fit: Consumers and restaurants want fresh, local foods, higher in nutrition, while managing their budget. Fresh produce are the top locally sourced foods purchased and the top spoiled foods in and out of the kitchen. Consumers are willing to pay extra for locally sourced produce and require a system to keep their foods fresh longer. Although the Fresh Box system will initially be focused on preserving produce it will ultimately scale to offer systems covering all different food groups. Fresh Box is well positioned to expand with it's target market from about 35,000 users in the first year, to 79,000 users in the second year, 1,000,000 users in third year, and lastly expanding our target market to 10,000,000 users in the fourth year of operation nationwide.

Business Model: Fresh Box is a three-part system with a simple handheld unit with a refillable inert gas canister, and reusable food storage containers. Using a razor-blade pricing strategy, Fresh Box's business model sets penetration prices for the starter kit and then generates recurring revenues by canister refills, spare canisters and additional food storage containers re-purchase. Delivering Fresh Box products to the end user will require partnering with a gas supplier, outsourced manufacturing, and building distribution channels.

Management: Allison Fairbank is Founder and acting CEO. She has a BS in Electrical Engineering. Business Advisor, Harry R. Rozakis, and Financial Advisor, Alan L. Mckinnon, Jr., bring over 40 years of start-up, executive, and financial experience. A legal team protects our company and IP. Currently we are seeking design, manufacturing and sales/marketing help.

Technologies/Special Know-how: Researched and developed out of the North Carolina State University, our patent pending system scales down an existing, proven and leading industrial food preservation method for home and business consumers. Fresh Box was demoed/presented in NCSU startup, new venture and new product showcases and competitions, as well as, in the NYC Energy Week Startup Showcase, CleanTech Open Southeast Regional Innovation Summit and the 2014 CleanTech Open Global Form. While demoing and talking to potential customers, Fresh Box consistently creates positive comments, feedback and leave people wanting more.

Market & Customers: Market penetration will be achieved by using web based social media as well as mainstream media such as promotional television commercials. The intent is to reach that market that is currently using food storage products such as Tupperware and Rubbermaid. Fresh Box will initially launch at Farmers Markets and small privately owned restaurants and food trucks.

Competition: Current top home food preservation methods include vacuum sealing, freezing and canning. For fresh produce, these solutions cause spoilage to occur faster, loss in vitamins and minerals or requires' additives. Fresh Box is the first solution to keep produce fresh while preserving its natural qualities.

Funds Raised & Use of Proceeds: To date Fresh Box has raised $24,000 in Friends and Family investment used for prototyping, legal structure, and protecting IP. The Company is seeking to raise $500,000 for its next phase of growth that is for completion of a customer ready system, the manufacturing of a prototype

INTRODUCTION

Fresh Box is excited to be a leading innovator in the next generation of home food preservation. By taking a fresh new look at an established technology, Fresh Box elongates the lifetime of food, reducing costs and waste. Everyday fresh foods are purchased, but unfortunately spoil quickly creating costly and unnecessary waste, particularly for organic fruits and vegetables, which are growing in popularity. Fresh Box is the first home food preservation system to keep food fresh, longer while maintaining the food's natural taste, texture, and nutrition. Increased access to fresh foods and reduced food waste provide both health and financial benefits. We have developed a comprehensive strategy to build and grow our business starting in North Carolina. Contacts have provided us with insight into how to develop relationships with manufacturers and the logistics necessary to bring the product to market. Our four-year projections show large profits being realized after initial set up is complete.

THE PRODUCT

Product Need

Food waste is a major global concern, with 1.3 billion tons wasted annually[1]. The average American family of four discards as much as 40 percent of their food, resulting in thousands of dollars wasted[2] and a further strain on many family's budget. Additionally, the world population is estimated to increase to 9.3 billion people by 2050 resulting in 2 billion more mouths to feed. The United Nations Food and Agriculture Organization (FOA) estimates we must increase our current food production by 70% in order to feed the growing population[3]. We must act now to meet this future food demand, reduce food waste, and create a sustainable food supply chain. The need to slow spoilage and reduce food waste has created a large food preservation products market, however this area has been lacking innovation for decades. Today outdated conventional methods of food preservation, such as plastic containers, canning, freezing and vacuum sealing, are imprecise solutions do not adequately keep food fresh, diminish the quality and nutritional content of food, and are expensive, bulky, and/or difficult to use.

Mintel's Food Storage - U.S. (February 2014) reports consumers have a strong interest in new food storage products with added benefits and want to be assured their food will stay fresh. With increased pressure from the need to feed the growing population, consumers wanting fresh local foods, and the unnecessary abundance of wasted food – a better food preservation system is needed. Companies need to continue developing and launching innovative products that allow food to remain fresh longer.

Currently, consumers instead of maximizing food quality, end up wasting money by settling for one or a combination of these suboptimal and less than ideal food preservation methods that results in the lose of money through food waste. Unlike Fresh Box, vacuuming can suffocate fresh produce. Exposing fresh produce to extreme heat or cold temperatures as in freezing or canning depletes the vitamins and minerals in your foods making Fresh Box the healthier option. These preservation systems result in food and other waste, decrease nutritional value, and loss of money. Fresh Box is the innovative alternative to increase the lifetime of food and eliminate waste and their associated costs. By reducing the amount of food wasted by only 15 percent each year, we could feed 25 million Americans[3].

Product Overview

Fresh Box LLC was initially researched and developed at North Carolina State University to help combat the emerging food crisis. Fresh Box, our patent pending home food preservation system, seeks to transform the way that people buy and store their food. By providing a reliable, convenient, compact, and intuitive system, Fresh Box will maximize the lifetime of the food while fitting into the lifestyles of its customers. Scaling down a leading industrial food preservation technology, Fresh Box brings the power of industrial food preservation technology to the consumer.

Technology

The secret sauce behind the Fresh Box system is Modified Atmosphere Packaging (MAP) and has been used industrially since the 1970s. MAP technology is the process of modifying the composition of the internal atmosphere of a food package in order to extend the shelf life of the contents. The modification process attempts to lower the amount of molecular oxygen from atmospheric concentrations (20.9 percent) to 0 percent in order to slow the growth of aerobic organisms and the speed of oxidation reactions. Commonly the oxygen is replaced with an inert gas mixture of molecular nitrogen, carbon dioxide, or argon to inhibit the growth of bacteria. MAP can be implemented in a couple different ways, typically through gas flushing and vacuuming.

To date MAP has not been available to the consumer at home. Fresh Box changes this by using gas flushing, which unlike vacuuming, does not suck out the atmosphere contained in the food storage container. Instead, Fresh Box replaces the air in the food storage container with a new protective atmosphere for optimal storage by forcing out the original air while filling it with the new atmosphere. The protective atmosphere is made up of nitrogen and carbon dioxide - they are safe, inert gases, non-flammable and non-explosive. These gases are heavier than air and fill the container bottom up. The action of the protective gases pushes the air surrounding the food in the storage container out. The Fresh Box system and MAP will help ensure fresh foods will stay as fresh for as long as possible.

What is Modified Atmosphere Packaging?

Many people use the benefits of Modified Atmosphere Packaging on a normal basis without even knowing it. When you grab a bag of chips, a bagged salad, or even buying prepackaged meats, food is taking advantage of Modified Atmosphere Packaging. Modified Atmosphere Packaging, or MAP, has been used since the 1970s as a way to elongate the shelf life of food. MAP works by replacing the initial atmosphere around food with a specific food safe gas mixture. The original atmosphere around the food contains oxygen, which encourages bacterial growth and causes food to spoil. MAP keeps foods as fresh as possible without the use of additives to the food. The typical inert gases used in MAP are nitrogen, carbon dioxide, and argon. The mixture and concentration of gases used depend on the foods being packaged. A broad range of foods including: breads, cakes, cheese, coffee, cooked and fresh meats, fresh pasta, fruit, milk, seafood, vegetables and ready meals are typically gas flushed. Modified Atmosphere Packaging is commonly used around the world and is a top food preservation technique throughout the food industries.

Figure 1: Example of an industrial MAP system

An example of a hand held prototype system design can be seen in Figure 2 and Figure 3. Fresh Box is a simple hand-held system made up of three components:

1. The first component is a small refillable and recyclable compressed gas canister. This canister is the power behind providing the new atmosphere into the food storage container.
2. The second component is a plastic piece that houses the gas canister. When holding the gas canister, the handheld unit quickly connects to the food storage container and provides the optimal food storage atmosphere. Gas flushing begins and ends easily by pulling and releasing the trigger.
3. The last component is a line of durable, stackable, and dishwasher safe plastic food storage containers, varying in size. The containers are fit with a specially designed lid to facilitate gas flushing. The food storage container easily connects to the handheld unit through a pair of one-way valves inset into the lid. When connected the new

atmosphere is pushed into the food container through one of the valve while the oxygen is pushed out the other. This is possible, due to the new atmosphere supplied being denser than oxygen and therefore fills the container from the bottom-up forcing the oxygen out.

Engineering Considerations

In interviews with potential customers, we found they wanted a more efficient and effective method of preserving food in their homes. Modified Atmosphere Packaging fulfills this need. Bringing MAP to the home users allows them to elongate their food's lifetime more effectively than current home food preservation techniques. Fresh Box also provides our customers with durable reusable food storage containers that will keep their food fresh, organized, and neatly packaged. Fresh Box's food storage containers will be stackable as well as dishwasher and microwave safe. While performing market research, we found many of the existing home food preservations methods to be difficult to use and time consuming. Therefore, we made Fresh Box as easy to use as possible

How it works

Fresh Box operates with a simple trigger control on the hand-held unit. The user simply places his/her food into one of our containers and seals the lid on top. The user then attaches the output valve from the hand-held unit to the input valve on the food storage container and pulls the trigger to initiate gas flushing.

Figure 1: Fresh Box design

The amount of time the user needs to hold the trigger and fills the container with the new atmosphere will dependent on the size of the food storage container. Ten seconds is all it takes to fill a 5-cup container. Once the user is finished flushing food storage container, the hand- held unit is simply disconnected from the lid and the food container is stored in the refrigerator as normal.

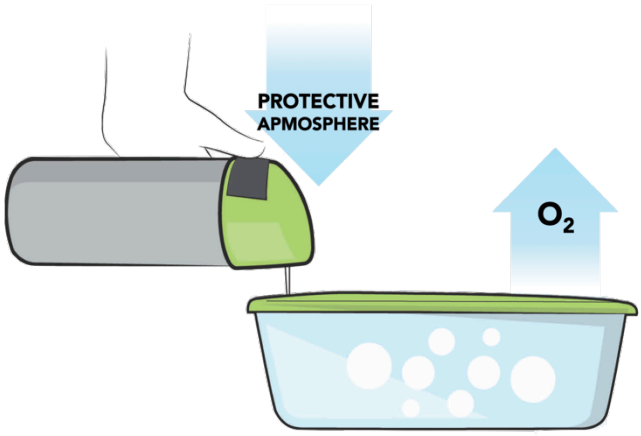


Figure 3: Fresh Box system working with our food storage container

Design Methodology

While a student at North Carolina State University, Ms. Fairbanks developed the proof of concept, initial food testing, and completed the first prototype. Prototyping the Fresh Box system started as an iterative process of mass-transfer modeling and experimentation. Initially, we sought to understand the mass transfer behavior of the gases in the container and those being delivered to the container. These calculations are included in the Appendix. We initially approached prototyping by determining the flow regime of the gas into the plastic containers. Because we wanted to flush the original atmosphere from the container we decided that a turbulent flow regime must be delivered to the container in order to flush the container effectively. Turbulent flow is a fluid flow regime characterized by unstable and unpredictable mass transfer. The large amount of vortexes that form and the energy that is required to initiate turbulent flow accelerates the mixing of fluids. The turbulent flow regime is ideal for gas flushing a sealed container.

This basic box was developed to be more compact and less like the typical counter-top appliance design. After talking to many potential customers and at the recommendation of our business advisor we decided to make another pivot. This time we wanted to develop an even smaller and simpler hand-held design. We took out all electrical components, used a smaller tank and made Fresh Box a basic mechanical design. This design eliminated the more expensive electrical parts and does not require a housing unit. A design with minimal parts will reduce production costs and go to market faster. The prototypes from each of the four stages can be seen in **Figure 4.** Currently, we are looking to gain help from a local design team to move us forward to our next aesthetically pleasing and manufacturable prototype.

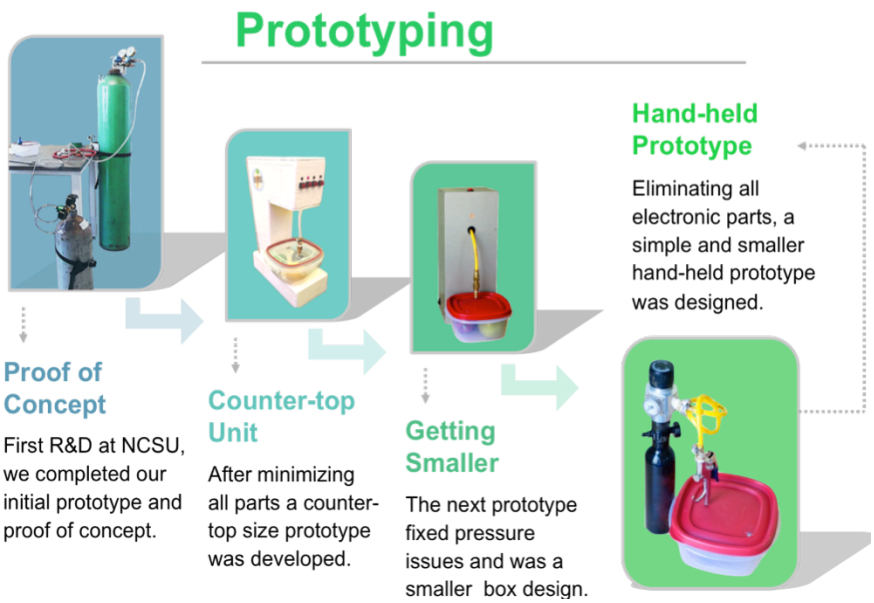


Figure 4: Four stages of prototypes developed

Experimental Results

The primary goal of Fresh Box was to develop a system that integrated a series of one-way valves that would open when gas was delivered to the system, but would also remain closed when the pressure inside the container was near to atmospheric pressure. This way we could ensure that the original atmosphere inside of the container was flushed and that the modified atmosphere would stay sealed inside of the container after modification. Our secondary goal of this phase was to analyze the composition of the modified atmosphere inside of the container to ensure we could mix gas inside of the system and deliver this gas mixture to the sealed container. However, after our initial prototype, we realized that by including mixing inside of the system, we were increasing the complexity of our solution unnecessarily. The sensors required to monitor the gas composition were also not needed. The design was then altered to focus on creating a simple and easy to use prototype.


Figure 5: First bulky lid design


Figure 6: Second stackable lid design

Several experiments on our initial prototype were conducted over a period of 24 - 48 hours to observe the differences of avocado, apple, potato, and banana in open container, closed container, and two prototypes containers. We sliced each food sample into equal size pieces and placed a piece of each sample into four separate plastic food storage containers. The

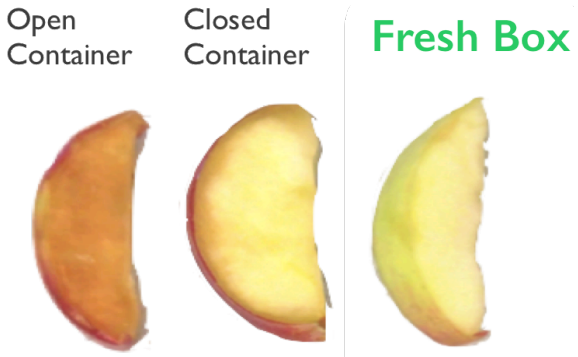


Figure 7: Initial food testing results

Gas Composition	Food
100% N_2	Dairy products, liquid foods, beverages, carbonated soft drinks, dried food products
95% N_2 and 5% CO_2	Fresh Produce
70% N_2 and 30% CO_2	Cooked meat, red meat, poultry, pasta, cooked fish, ready meals, cooked vegetables
50% N_2 and 50% CO_2	Bakery products, cheese (soft), oily fish

Table 1: Protective food gas mixtures and associated food products

overall results from this series of experiments demonstrated the fresh food samples stored using Fresh Box stayed fresh longer. Some of our results from the experiment can be seen in Figure 7. Due to the short period of time we were able to gain access to lab space, the experiment was run several times for short periods. Further experimentation will be conducted assure the optimal gas mixture for fresh produce and usability of our system. In addition, experiments will be conducted for longer period of time to observe clearer difference in the spoilage rates of different foods.

To keep the consumer usability simple we implemented an easy and automated electric push button start. We decided to utilize a small pressure regulator, followed by an electric solenoid valve to control the system and deliver the gas flow at an appropriate pressure and times. We also placed importance on changing the one-way valve design on the food storage container lid to ensure the container was readily stackable. To solve this problem, we were inspired by the air pumping system of basketballs, which required a small, inset valve that only allowed the influx of air when a needle was inserted into the valve. Our first prototypes of our container lids are depicted in Figure 5 and Figure 6. Once we changed our focus to only preserving fresh fruit and vegetables, the next prototype was a box design reduced in size and parts. This prototype only required only one button to control the gas canister needed to create an optimal atmosphere for fresh produce.

THE MARKET

Overview And Analysis

Worldwide, 1.3 billion tons of food is wasted annually, enough food to feed the hungry around the world three times over1. Furthermore, an average American family of four throws away 40 percent of the food purchased, about $2,275 per year, resulting in a total of $165 billion of food to decay in landfills[2]. Fresh Box will reduce this food waste and allow Americans to purchase food with fewer concerns. For the average family, food is a major expense in the budget, but for the average family almost half is wasted. About 2/3 of the wasted food in the home is due to spoilage with fresh fruit and vegetables making up the most wasted food[3].

Figure 8: Example of our target market

Today's consumer considers three factors when purchasing food: quality, nutrition, and price. To the average consumer, quality means fresh, local foods, higher in nutrition and often organic, but also at an increased cost. Consumers and governments are beginning to notice the amount of food waste and the economic and environmental strain it's adding. As a result of the current economic climate, consumers want to have a higher quality, healthier product while maintaining a tight budget. Fresh Box can alleviate these problems by extending the lifetime of fresh food and dramatically reducing consumer's cost, risk, and carbon footprint. Fresh Box has a low first year cost less than $200 and recurring annual cost of only about $110.

Offering a new product with a unique and more efficient solution, Fresh Box LLC will re-segment large already established food preservation market. This strategy will differentiate us from the entrenched, but stagnant, competition in

the food preservation industry. Fresh Box will also take advantage of the rapid growth of farmer's markets and the farm-to-table movement in the United States.

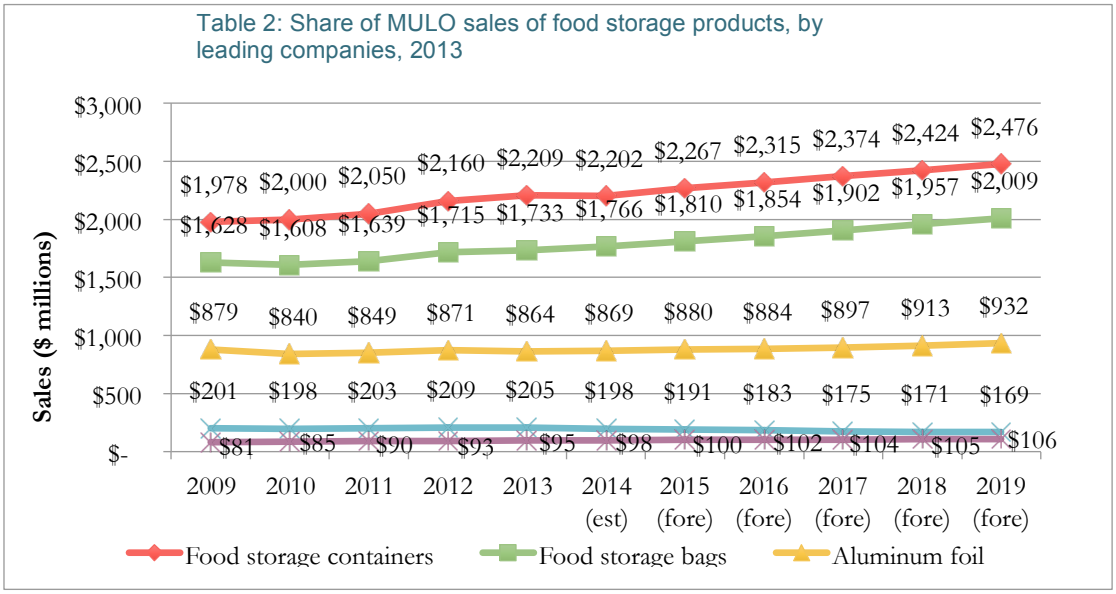
Industry Description And Outlook

Food preservation has been practiced in every culture since the earliest known human civilizations. Throughout history, the continuous need to keep food fresh has created a large food preservation industry that includes chemical preservatives, encapsulation, irradiation, packaging, and order used practices. According to a Business Communications Company, Inc. (BCC), the United States market for food preservation and shelf life extenders valued $197 billion in 2003[8]. The demand for food preservation in the U.S. remains strong and growth will continue to increase. The United States saw the need for food preservation drastically increase in the past decade and is projected to continue growing 5.5% annually to surpass $250 billion in 2008. Furthermore, the global food preservation technologies market was $103 billion in 2013 and expected to increase by 4.1% annually to $634 billion in 2008[8]. This creates a large opportunity for new companies to develop new products, technologies and systems in the food preservation market.

Consumer demands for fresh, high quality, and nutritional food in the past decade created a significant importance on the development of emerging home food preservation technologies. Largely, consumer demands for fresh and healthy food drastically amplified the interest in the development of new home food preservation technologies.

Rising consumer demands along with additional consumer, economic, and environmental factors contribute to the shape of the home food storage market. Mintel's Food Storage e and Trash Bags– US, January 2015 report finds reports food storage market rose by 8% in 2009-2014 with US retail sales toping $5 billion in 2014 and projected to continue increasing by 11% in 2014-2019[8]. The Food storage market includes: food storage containers, food storage bags, aluminum foil, plastic wrap, and wax paper. Food storage container, food storage bags, and aluminum foil make up the largest segments accounting for respectively 42%, 34% and 17% of US retail sales segments[8]. Continued consumer reliance on food storage products will yield steady growth. Food storage container sales increased 11% in 2009-2014 reaching $2,202 million and expected to increase by 12% in 2014-2019 to reach $2,476[8].

Table 2: Share of MULO sales of food storage products, by leading companies, 2013



A few leading companies including Rank Group Ltd., Sterilite Corp., and SC Johnson drive the MULO sales of food storage products. Rank Group Ltd. and Sterilite Corp., with each have 18% of the market. SC Johnson has 16% of the market.

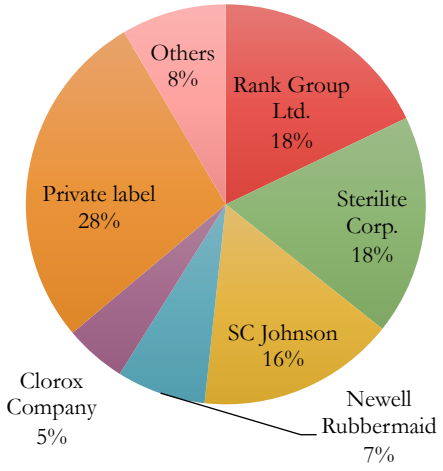
Market Drivers

The food storage market behavior is a result of a three major influencers: economic, consumer, and environmental drivers.

- ### Economic Drivers

In 2013, consumer confidence in the economy stands at the highest levels since the recession in 2008. Improved consumer sentiment has also increased. Per capita disposable income reportedly also increases in 2014. Improved financial situations allow consumers to make home product purchases with less stress. Although the unemployment rates continue to hang in a five-year low, a brightening economy outlook with the prospective for greater disposable income will push customers to freely purchase food storage and preservation products.

Table 3: Share of MULO sales of food storage products by leading companies, 2013



Data may not equal totals due to rounding The above figures are based on MULO sales data from Information Resources, Inc., InfoScan Reviews. MULO is defined as Multi Outlet, representative of the following channels: Total US Grocery, Mass, Total US Drug, Total Walmart, Dollar, Military, and Club.
Source: Information Resources, Inc., InfoScan Reviews/Mintel

- ### Consumer Drivers

Consumers are increasingly concerned about their health and wellness pushing them to make healthier food decisions. Consumers have also become increasing aware of the use of chemicals and harsh toxins used to manufacture household goods.

Heightened health consciousness and the demand for green and natural products also drives consumers. Consumers want high quality fresh, foods, that are also delicious and nutritious. Demand for fresh produce and fresh produce consumption is projected to climb. Growing health concerns plus the demand for fresh produce present an opportunity for emerging products and companies to shake up the market. Consumers crave food storage products with enhanced effectiveness for keeping food fresh and are willing to pay the costs. Fresh produce consumption is projected to continue growing in the United States despite normally having higher costs to processed foods

- ### Environmental Drivers

Climate changes, natural disasters and other environmental conditions influence the production of fresh foods. Combined with demands of the growing population and amount of abundant food waste influence food prices have also increased.

Target Market

Our initial target market centers on individuals who are responsible for the grocery shopping and cooking in their households. This group is normally budget conscious and care about their households well being. Typically, this demographic includes middle class women, ages 25-54, with some education from an accredited college or university and who prefer fresh produce. Our target market includes people who regularly cook their meals at home, care about cooking with fresh foods, and provide the best meals possible for their households. This target market has the desire to buy and use fresh foods and therefore,

Figure 9: Projected market segment sizes

demonstrating a strong interest in home food preservation. We have named our target market the "Local Shopper" and adjacent markets the "Millennials", "Cooking Enthusiast", and "Mother Hens" all defined below by their key attributes:

Local Shopper: Women ages 25-64, buy fresh fruit and vegetables at local the farmers markets and care about the quality of their food. They value to natural qualities and benefits from fresh produce. This market are lured to purchase locally sourced produce for the foods freshness and to support the local economy. Marketer should promote foods freshness as well as positive environmental impact, natural and local benefits. This group comprises of 6.5 million women.

Millennial: Women ages 18-34 that cares about the quality of their food and the well being of their children and family. They are drawn to buy local foods for their freshness and support of the local economy. Millennials make up a segment of 3 million women. They have high interest in environmentally friendly companies and products. Hate waste but love to save. Tossing wasted food into the trash is the same as tossing out your hard earned money.

Cooking Enthusiast: Women ages 25-64 who cook at home at least one or two times per week. They cook at home because they enjoy it and for health benefits. They have at least a basic cooking skill level, and like experimenting with new ingredients and cooking methods. A Cooking Enthusiast likes using fresh foods and ingredients when cooking and look to TV cooking shows, online resources, and restaurateurs for new kitchen products. Marketers should promote new creative, fun and simple cooking methods as well as health benefits. Cooking Enthusiasts total 4.1 million women.

Mother Hens: Married women with at least 18 years old. Their main concern is their children and families health. They desire to more nutritious options their families. They are to typically cost conscious and have busy schedules. They use coupons are more likely to buy in bulk to cut costs. Mother Hens get their new product information from cooking TV shows, magazines and blogs. Marketers should promote health and cost benefits, as well as offer occasional coupons and special promotions. There are 4.9 million Mother Hens in the United States.

Nationwide, we've identified a market of 18.4 Million prospective customers worth $3.7 Billion. *(based on minimum $200 lifetime value per customer).* Below a breakdown of the four recognized prospective customer sub-segments and their projected value are provided:

Local Shoppers 6.5M	$ 1.3 Billion
Millennials 3M	$ 600 Million
Mother Hens 4.1M	$ 820 Million
Cooking Enthusiasts 4.9M	$ 980 Million
Total 18.4M	**$ 3.7 Billion**

As we expand our business and marketing campaigns from this initial target market, we hope to focus on educating other groups in order to grow our share of the overall market. We anticipate one of our biggest challenges will be educating the general public about this innovative easy solution to keep their fruit and vegetables fresh longer. We envision Fresh Box as a food preservation system that every household could use, making the maximum market size even greater.

Market Predictions

Fresh Box falls into the food storage products and of small kitchen appliance markets. Food storage containers made up a $2.1 billion market in 2013 that has 3 percent average forecasted annual growth over the next five years[3]. Small kitchen appliances are an even bigger market with almost $6 billion in sales in 2013[6]. They also have a large projected growth of

13 percent over the next five years[6]. Both of the markets that Fresh Box falls into is a large and consistent market place. However, the consumers in this market place are driven by an economizing mindset so innovative new products must provide superior features and functionalities to these consumers to deliver products that offer extra reassurance of a tight seal and that help them better manage their stored food. We see this market as large and having a steady growth in the years to come, particularly as the eat local and eat organic trends continue to grow. This will allow Fresh Box to make significant revenue with the total initial market share with room to expand securely.

OUR COMPETITION

I In order to maximize food value, many people currently use conventional solutions for food preservation; however, they are not the most effective means to maintain food freshness. Ordinary methods like the use of food storage containers, freezing, canning and food vacuum sealers fail to solve the true cause of food spoilage, food's exposure to oxygen. Oxygen is what causes all food to spoil, singlehandedly discoloring and degrading food as well as encouraging microbial growth. By not addressing this problem, each of these non-solutions fails to provide a product, which can truly preserve the distinctive appearance, flavor, and texture of fresh food.

The top food storage products are aluminum foil, plastic wrap, plastic food storage containers and plastic food storage bags. These types of food storage products have a high household penetration and do not significantly extend food lifetime. Our primary competitors in the food storage container market are Glad®, Zip-loc® and Newell Rubbermaid. These three companies account for thirty percent of the current food preservation products, and are largely entrenched in the food preservation products market. Our competitors make for a difficult entry into our target market, however they are huge organizations that are slow to adapt to a changing market, providing us with a good opportunity to disrupt this marketplace and solidify our leading position before they can adjust. We also envision one of these competitors a licensing Fresh Box technology in the future. Other common solutions within the home are canning, freezing, and vacuum sealing. Each of these solutions are inferior to Fresh Box's MAP technology as previously noted.

Figure 10: FoodSaver Vacuum Sealer

Our closest competition is the FoodSaver Vacuum Sealer System that is similar because it removes the oxygen stored around food. However, the FoodSaver, as shown below, is a large appliance requiring significant counter space that may already be crowded. Additionally, Fresh Box preserves food for a longer amount of time than this system, thus increasing the life of fresh produce. FoodSaver products are part of the Jarden Corporation Brand and are by far the largest player in the small appliance marketplace with three times the sales of its nearest rival. FoodSaver systems are distributed through big box stores such as CostCo and Kohl's, which demonstrates the opportunity for a superior product such as Fresh Box to be sold through these distribution channels.

THE STRATEGY AND IMPLEMENTATION

Business Model and Execution

Fresh Box will employ a razor-and-blades business model approach to maintain incremental sales revenue. Customers will purchase the starter kit at a penetration price, and continuously purchase gas canisters or canister refills as well as additional food containers thus producing multiple recurring revenue streams. The majority of profits will be generated

through our existing customers and recurring revenue streams, providing an ongoing source of income and generating a highly profitable portion of the business. In order to jumpstart Fresh Box, we will initially seek funding from non-profit programs, government grants, crowd funding and individual or group investors. The majority of this funding will go toward setting up the basics of the company and cover manufacturing and advertising costs during the first year. This initial arrangement will allow us to build the resources, capital, and relationships needed to expand in the second year as our customer base and company grows. As Fresh Box continues to grow in year three, overhead costs are anticipated to rise with the need for additional advertising, manufacturing, and legal services. Along with increased volume, economies of scale should also be realized in year three and will help offset other costs. By year four we will have gained a positive reputation and will have identified the key resources needed to expand the manufacturing on a national scale.

Team

Our team was a multidisciplinary team of engineers initially developed the Fresh Box system at North Carolina State University including one electrical engineer and three chemical engineers: Allison Fairbank, Kate Sintavanon, Jarrett Bliton, and Lee Tropp. After recently graduating from North Carolina State University and moving forward with Fresh Box, most of the founders had to leave the company due to financial or other reasons. With a strong passion to reduce the global food waste issue, along with a strong internal drive and a little bit of a dreamer attitude, Allison is the only original founder to continue moving forward with Fresh Box.

Fresh Box has also gained lots of support and outside help. Fred Hutchison, at Hutchison PLLC, was secured to set up and assists with our business legal structure. Jim Passé, of Passé Intellectual Property, LLC is our Patent Attorney and our intellectual property support. Through the CleanTech Open Fresh Box gained our Business Advisor and Financial Advisor. Our Business Advisor, Harry Rozakis, brings start-up and entrepreneurial experience to Fresh Box. Harry Rozakis is Managing Partner of Multi-technology Ventures International LLC (MVI). He has more than 35 years of executive management and technology leadership in the semiconductor manufacturing industry and solar industry. Harry is a "serial entrepreneur" who has focused on turnarounds and start-ups, and has been the CEO of both publicly traded and privately held companies. He has spent a significant part of his career working in the Asia Pacific region, including setting up three manufacturing operations in China, as well as a semiconductor start-up in Vietnam.

Our Financial Advisor, Alan L. Mckinnon, Jr., is Operating Partner of Pennant Equity Partners in Finance, Business Development and Investor Relations. Alan has considerable experience as a finance veteran, with significant international expertise, who helps companies raise capital, develop financial strategy and manage due diligence. His background includes positions as CFO, corporate treasurer, and fundraiser for private and public companies. He's held corporate management positions at Cyrium Technologies, Deerpath Energy, Vietnam Chipscale Advanced Packaging Services (which he co-founded), The Garrett Group of San Francisco, Varian Semiconductor (Nasdaq: VSEA), East Asia Ventures, LLC, and Prodigy International, Inc. He learned the buyout business and manufacturing at Connell Limited Partnership, a Boston based buyout firm, and started his career with the Bank Supervision Division of The Federal Reserve Bank of Boston.

Legal Structure And Liability

Fresh Box is a Limited Liability Corporation registered with the NC Secretary of State. This provides legal protection for personal liability and corporation debts. Forming an LLC also makes Fresh Box more attractive to investors. A LLC also allows Fresh Box to provide better employee benefits as well as more tax deductions than a partnership.

To protect our company and personal, Fred Hutchison of Hutchison PLLC has set up our business legal structure. This includes securing release of rights contracts from initial co-founders leave, completing our Operating Agreement, SEC filings, investor subscriptions, our capitalization, and our friends and family funding round.

To protect our product, we acquired a Provisional Patent dated April 23, 2014. Jim Passé of Passé Intellectual Property, LLC conducted a patent and prior art search and opinion regarding our invention, the Fresh Box system. Our Utility Patent Application has been filed with Patent: US 14/691,657. Currently we are waiting till our application has the

opportunity to be reviewed by the US Patent and Trademark Office. Attaining our full utility patent for our Fresh Box System would make our product defensible against competitors. We do not currently have a PTC to protect internationally, but will consider in the future. While we can protect our idea as a gas flush system and our container designs, MAP technology itself is not patentable because it has been around for over 40 years. However, competitors would have to develop a different method to deliver the modified atmosphere. We would establish our position in the market before any competition could get a product to market. This would cement our position as an innovative food preservation system to stay on top of home MAP by innovation and adopting features that consumer's desire. Moreover, many of the current marketing trends in the food products market-place point towards growing portions of the population interested in purchasing fresh, local produce, which is more apt to spoil quickly. The success of other compressed gas appliances, such as SodaStream©, have primed the way for our system to enter the market. These trends reinforce our hypotheses regarding the growing needs for innovations in the food preservation marketplace. Our technology also opens us up for licensing opportunities.

Marketing

Fresh Box and how our system efficiently preserves food better the methods currently available. Partnerships and endorsements with farmers and top chefs will form the foundation of our credibility with our customer. With the support of these influential industry players we will be able to cause a paradigm shift in the way that people look at purchasing and storing food.

We will use an aggressive infomercial campaign to ensure we demonstrate Fresh Box's numerous benefits and ease of use. We have seen the success of SodaStream© while they launched their infomercial campaign and we know we can achieve the same result. Their company had to break into a new market bringing an industrial beverage carbonation system that use compressed can canisters to home users. Initially, SodaStream© had to inform their market of the benefits and convenience in using replaceable gas canisters and a home pump system. Many people become alarmed at the thought of mixing their food or beverage with any types of gases. However, MAP has been used for decades and we can guarantee the gasses our system will use are non-toxic and safe for food storage. Infomercials are a highly effective form of advertising, which will allow us to explain and demonstrate the resulting value when using Fresh Box.

We will also take advantage of many different types of online marketing to help generate product awareness while growing our customer base and businesses credibility with little additional costs. Fresh Box will utilize free online advertising and social media sites such as: Facebook, Twitter, YouTube, Reddit and blog sites. We have already secured two food and health enthusiast bloggers, Trendy Kendie at www.trendykendie.blogspot.com and Kettler Cuisine at www.kettlercuisine.com, whom are both eager to help spread Fresh Box's awareness and are also willing to allow Fresh Box to utilize their sites to gain any additional market information and analysis.

Making use of free advertising and word of mouth can be very powerful. Fresh Box has acquired the domain name www.freshbox.kitchen in order to accommodate its official website. Our website will be used to maintain and grow good customer and business relationships. Once on our website, users will be able to easily navigate through the site and access detailed information, such as maximizing use of our products, video demonstrations, user tips and tricks as well as updated product and business news. Our customers will enjoy visiting our site frequently as well as sharing it with friends to check out the latest user cooking competitions, promotions, recipes, and other buzz worthy attractions. We also plan to use our official website as a convenient communication hub between our business and our customers or business partners. We strive to maintain a simple and reliable link.

Expansion

We plan to launch and start only being offered in North Carolina the first year on the market then expand out geographically. After Fresh Box becomes established, we will make the exciting jump to expand nationwide during the fourth year of operation. This four-year plan allows our target market to expand from about 35,000 users in the first year, to 79,000 users in the second year, 1,000,000 users in third year, and lastly expanding our target market to 10,000,000 users in the fourth year of operation nationwide.

As we expand, we will require Fresh Box headquarters in each state to handle gas canister logistics. By starting small and only employing the four founders of Fresh Box in the first year, we will be able to closely watch the growth of our company while keeping our core values and producing a high quality product. During the subsequent years, Fresh Box will require supplementary personnel in order to grow our business. We will increase our sales and marketing team, general and administrative workforce as well as our manufacturing persons in each stage of growth as we launch Fresh Box into a new area. Table 8 (see Appendix A) shows Fresh Box's projected personnel headcount needed within the first four years.

Achievements

We have placed 1st in the North Carolina State University Engineering Entrepreneurs' Program Senior Design Day showcase, and received Judge's Choice from the Lulu eGames, New Venture Challenge. .

Fresh Box LLC was accepted into and completed: Engineering Entrepreneurs' Program, Entrepreneurship Initiative Program, the Cleantech Open 2014 Business Accelerator, Groundwork Labs, and Leadership exCHANGE's e51 Kat' I- is'er program. Currently Fresh Box is in the 2015-2016 ThinkHouse program and working out of HQ Raleigh and the North Carolina State University Technology Incubator.

Fresh Box has had the opportunity to be demoed or present at many events including: the CED Tech Venture Conference in Raleigh, NC; the New York City Energy Week Startup Showcase; the Southeast Innovation Summit in Washington, DC; and even the Cleantech Open Global Forum in San Francisco, CA.

Figure 11: Programs Fresh Box LLC is/has participated in

FINANCIALS

SALES FORECASTS

Fresh Box a tremendous opportunity to develop and profit from an untapped home consumer market. Fresh Box is entering an existing market of food preservation but brings a new method to home users. Modified atmosphere packaging has been used in the industrial food packaging industry for decades; however, it has never been introduced into the home. With our initial plan of starting small and expanding geographically we projected to sell at least 800 starter kits in year one, 2,000 in year two, and 20,000 in year three and 150,000 starter kits in the fourth year. Now that we have acquired new connections through our business advisor we have realized we can manufacture and distribute on a much larger scale.

REVENUE STREAM

Fresh Box is using a recurring revenue model where Fresh Box will be sold first as part of a starter bundle offered at minimal cost. As customers use Fresh Box, they will continuously purchase more food containers and gas canister refills. Most of our revenue will come from sales of gas refills and additional containers. Figure 2 shows the different products sold. Our starter kit will be sold for $75.00 and includes one handheld device, one filled gas canister, and one food storage container. Additional food storage containers will be sold from $5.00 to $12.50. Gas canisters will be sold at $30 new or $15 for refills. Our different products and their associated costs will generate multiple recurring revenue streams.

The first two years will involve slow growth, marketing development, and modest profits. After the first two years, Fresh Box will begin its rollout to larger retailers, such as Costco, Wal-Mart, and Target. In order to enter these marketplaces, Fresh Box will need to expand its manufacturing, advertising, team expansion, and distribution capabilities. The process of scaling up production will take place during years two, three, and four of operation.

Cash Flow Analysis ($1,000):	Year 1	Year 2	Year 3	Year 4
Net Income	-2.4	195.4	2,011	18,897.7
Asset Purchases	0	-26.3	-232.8	-2,002.8
Starting Cash	75.5	73.1	242.2	2,020.4
Ending Cash	**73.1**	**242.2**	**2,020.4**	**18,915.3**

Table 4: Projected net income for first four years

FUNDING

Fresh Box is currently seeking $500,000 to fund seed-stage growth, early manufacturing costs as well as initial sales and marketing costs. Moreover, these funds will allow Fresh Box to succeed in the market place by establishing the appeal of Fresh Box with the key demographic groups. By extending the lifetime of all kinds of food, we ultimately hope to change the way that people think about buying, storing, and eating food.

Fresh Box has Fresh Box has already received $500 from the North Carolina State University, awarded $1,000 from the NCSU Lulu eGames, and we have already raised almost half, or $24,000, of our goal of $50,000 in our friends and family funding round.

Some potential funding opportunities include: potential investors, other small business startup competitions, accelerator programs or incubators and online platforms such as KickStarter. At this time we are seeking $500k in additional investment funding to cover our projected expenses.

Income Statement ($1,000):	Year 1	Year 2	Year 3	Year 4
Starter Kit	60	240	2,400	18,000
Small Containers	2.5	15	100	1,000
Large Containers	2.5	15	100	1,000
N2 Canisters	7.5	127.5	1,027.5	10,028
Co2 Canisters	7.5	127.5	1,027.5	10,028
Total Revenue	**80**	**525**	**4,655**	**40,056**

Table 5: Projected revenue for first for years, per system

Expenses ($1,000):	Year 1	Year 2	Year 3	Year 4
Cost of Goods Sold	34.6	138.8	1,114	8,053.1
Factory Overheads	1.6	10.5	93.1	801.1
Research & Development	4	26.3	232.8	2,002.8
Marketing	8	52.5	465.5	4,005.5
General Administration	7.6	26.3	232.8	2,002.8
Legal	13	57.5	470.5	4,010.5
Other costs	13.6	17.7	35.3	282.5
Total Expenses	**-82.4**	**-329.6**	**-2,644**	**-21,158.3**

Table 6: Projected expenses for the first four years

PARTS AND LABOR

All parts will be made out of BPA-free, food-grade plastic which is microwave and dishwasher safe. The plastics include PET (polyethylene terephthalate), PP (polypropylene), PS (polystyrene) and other appropriate plastics. By partnering with a local design team we will optimize and develop a simple product with minimal parts.

Manufacturing and assembly will be overseas due to lower production costs. We will focus on quality control to make sure that the specifications are communicated well and the requirements are met. Supplier agreements will be used to specify clearly

how we will conduct business with each supplier, how the quote process will work; how we will manage lead times and the payment terms; and identify how we will resolve conflicts.

Total Sold (Units):	Year	Year 2	Year 3	Year 4
Starter Kits	500	2,000	20,000	150,000
Small Containers	250	1,500	10,000	100,000
Large Containers	250	1,500	10,000	100,000
N2	250	4,250	34,250	334,250
CO2	250	4,250	34,250	334,250

Table 7: Anticipated number of products sales in first four years

CONCLUSION

Fresh Box is well positioned to disrupt the largely stagnant food preservation product market. Our innovative approach to bring industrial food preservation technology to the home consumer grants us a large competitive advantage over our entrenched competitors. The Fresh Box system has been designed as alternatives to many of the conventional methods currently available, which are non-specific and ineffective solutions to prevent food spoilage. Our market research has validated the consumer's need for food preservation such as ours.

Being the first to market with a new unique solution to an old problem, we are presented with an opportunity to be a major contributor and leader in the projected emerging food supply crisis. Ultimately, we endeavor to transform the way in which consumers consider buying and storing all types of food.

At this time we are seeking $500,000 to finance our seed-stage development and expansion. During this phase we will finalize our system's design and establish initial manufacturing and logistic architecture to assemble and distribute the first run of the Fresh Box system.

All together we have completed three prototyping stages. We started with our proof of concept and focused on getting appropriate food testing results. Next we examined at all the components and wanted to minimalize all parts. After a couple counter-top designs were developed we've decided on constructing the next Fresh Box system as a hand-held unit. At this time we are looking to work with a design team help us finalize our design for manufacturability in large quantities.

Using Fresh Box will allow home users to conveniently preserve the freshness of their food well beyond the capacity of current competitors' products. Our product is adaptable to a wide variety of foods and durable for long-term use with low maintenance cost. This will allow our customers to keep themselves -- and their wallets -- healthy. Fresh Box gives consumers time to enjoy their fresh foods longer, reduce food waste and spoilage, as well as their costs and environmental impact.

In order to maximize profits we will minimalize expenses in various ways. Outsourcing most of the manufacturing process will help accelerate the first launch date as well as lower overhead costs. Table 4 exemplifies the rapid expected growth in our ending cash, that Fresh Box is predicted to generate within its initial stages. It can be seen that Fresh Box will swiftly mature as a business and is projected to end its fourth year with a gross profit of $18,915,300.

APPENDIX A: REFERENCES

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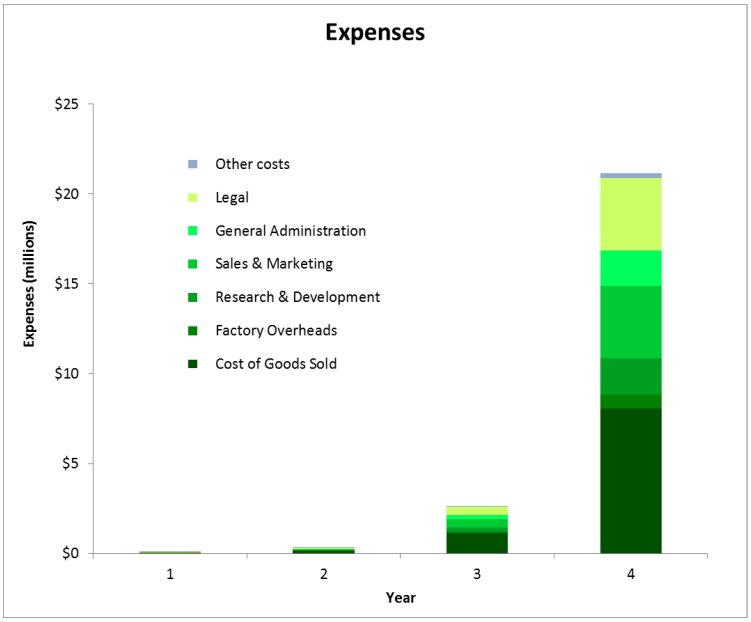
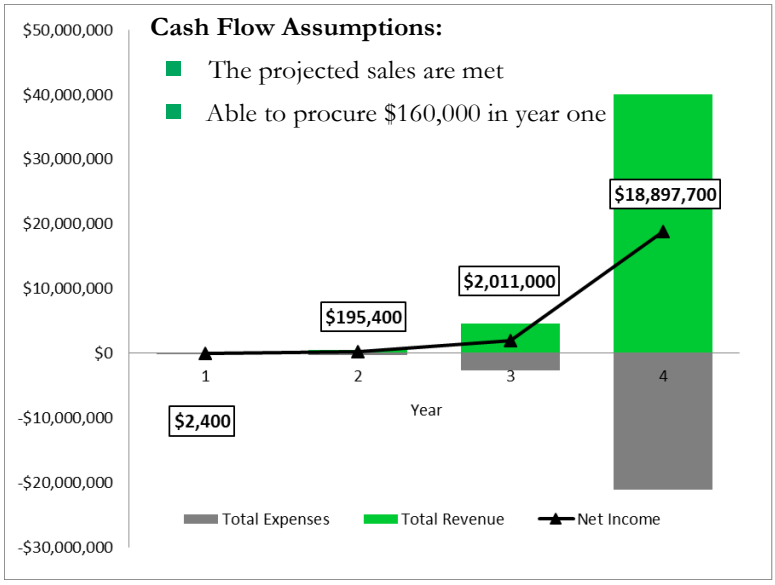
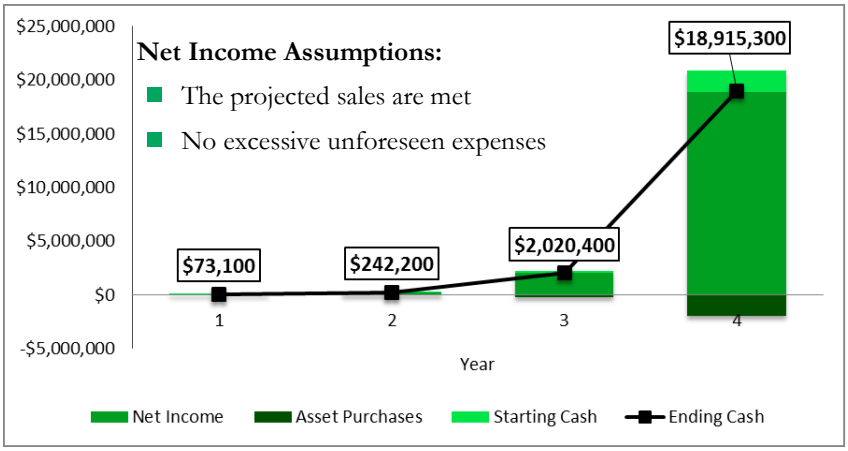
APPENDIX B: Additional Financial

Personnel Head Count (people)	Year 1	Year 2	Year 3	Year 4
R&D	4	1	4	8
Sales & Marketing	4	5	10	20
General & Administrative	4	5	8	20
Manufacturing	4	2	5	138
Total Head Count	**4**	**13**	**27**	**186**

Table 8: Total Personnel head count for first four years







APPENDIX C: Gas Flow Calculation

Gas Flow Calculations:

$$d_{tube} = 0.25\ in = 0.00635\ m$$

$$Re = Turbulent \geq 4000$$

Darcy – Weisbach equation:

$$\Delta p = f_D * \frac{L}{D} * \frac{\rho v^2}{2}$$

$$Re = \frac{\rho v D_H}{\mu} = 4000$$

$$\rho_{mix} = f_{V,N_2}\rho_{N_2} + f_{V,CO_2}\rho_{CO_2} = 0.7 * (1.842) + 0.3 * (1.251) = 1.4283\ {}^{g}/_{L}$$

$$\mu_{mix} = f_{V,N_2}\mu_{N_2} + f_{V,CO_2}\mu_{CO_2} = 0.7 * (1.663 \times 10^{-4}) + 0.3 * (1.125 \times 10^{-4}) = 1.5016 \times 10^{-5}\ Pa \cdot s$$

$$v = \frac{4000 * 1.5016 \times 10^{-5}}{1.4283 * 0.00635} = 6.6\ \frac{m}{s}$$

$$\Delta p = 0.024 * \frac{L}{0.00635} * \frac{1.4283 * 6.6^2}{2} = 1.17L\ Pa$$

$$V = 5\ cups = 1.18294\ L = 0.001183\ m^3$$

$$A = \pi r^2 = \pi * (\frac{1}{2} * 0.00635)^2 = 3.1669 \times 10^{-5}\ m^2$$

$$\dot{V} = A * v = 3.1669 \times 10^{-5} * 6.6 = 2.09 \times 10^{-4}\ \frac{m^3}{s}$$

$$t = \frac{V}{\dot{V}} = \frac{1.183 \times 10^{-3}}{2.09 \times 10^{-4}} = 5.66\ s$$

Re – Reynolds Number	v – Velocity	μ – Dynamic Viscosity
d_{tube} , D, D_H – Piping Diameter	$\dot{V}$ - Volumetric Flow Rate	f_V – Gas Composition Fraction
Δp – Pressure Drop	V – Volume of Container	r – Piping Radius
f_D - Darcy Friction Factor	ρ – Density	A –Piping Cross Sectional Area
L - Piping Length	t – Time needed for Complete Flush	