

Bad Apple Cider Company

[Minnesota's most sustainable hard cider.]



Fighting fight food waste
without compromising taste.

Product Owner: Molly Farrell

I. Executive Summary

Concept Description:

Bad Apple Cider Co. produces a variety of craft hard ciders using otherwise unharvested apples and fruit from Minnesotan farmers. Many farms cannot attend to their entire fruit crop, which causes tons of wasted food annually.¹ Bad Apple Cider Co. mitigates harmful food waste,² by harvesting the discarded “seconds” from these farms and fermenting the fruit into delicious, hand-crafted cider. Our ciders fight food waste without compromising taste, meaning customers can enjoy Bad Apple Cider knowing they’re supporting local farmers in the name of sustainability.

Opportunity:

According to the USDA, there are a variety of economic factors that drive farmers to leave their crops unharvested. Some of these factors include price volatility, labor costs, weather damage, lack of post-harvest infrastructure, and, namely, consumer esthetic standards.³ However, weather damage and cosmetic finish are not major concerns in cider production. In fact, these “bad apples” (and other fruits) have an opportunity to provide additional revenue for farmers struggling to profit from their entire crop. The Bad Apple Cider team harvests the crop and then purchases the seconds at a low cost. In turn, the company markets a sustainable hard cider to (of age) Gen Zs and Millennials. This demographic leads in both sustainability-first purchasing⁴ and hard cider consumption.⁵

Solution:

Bad Apple Cider Co. closely partners with 73 orchards within a 50-mile radius of the Minneapolis distilling site.⁶ Our harvesting team gleans the unwanted apples and transports the fruit to the cidery where the fruit is pressed and fermented. To source other fresh ingredients, such as pears, cranberries, and honey, the company outsources gleaning labor. Due to the variable influx of gleaned apple varieties, Bad Apple Cider Co. offers rotating cider flavors. Some of the flagship ciders include: “#1 Pick,” a crowd-pleasing, semi-dry cider; “Imperfect Pear,” a semi-sweet apple, pear blend; “Bee’s Knees,” a sweeter cider made with Minnesotan honey; and “Cranberry Craze,” a tart dry blend featuring a classic cran-apple combo. Although there may be some concern about using “rejected” fruit, the cider company will use its online presence (through social media and a webpage) to educate consumers and skeptics about the cider-making process, gleaning, and the imperfect food movement. Additionally, the company will track and promote the weight of produce salvaged throughout its production span. Bad Apple Ciders allows customers to invest in local food waste mitigation by simply enjoying an elegant, locally-made beverage.

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1. *Food waste in America in 2022: Statistics & Facts: RTS.* Recycle Track Systems. (n.d.). Retrieved November 23, 2022.
 2. ReFED. (n.d.). *Gleaning Impacts.* Solution Database: Prevention: Optimize the Harvest. Retrieved November 30, 2022.
 3. Minor, Travis, et. al., *Economic Drivers of Food Loss at the Farm and Pre-Retail Sectors: A Look at the Produce Supply Chain in the United States*, EIB-216, January 2020.

Value Proposition:

The company works with several customers including cider sippers and cider sellers. Cider sippers are an audience made of Gen Z and Millennial figures over 21 who already enjoy craft cider.⁵ Cider drinkers have shown to have little brand loyalty and a willingness to try new ciders on the market. Additionally, this target audience, made of the largest craft cider consumers, also tends to make purchasing decisions based on sustainability. Bad Apple Cider Co. will highlight its food waste mitigation through marketing to attract this audience. The other customer is a cider seller. These are the liquor distributors that can circulate Bad Apple products in retail stores and online throughout the metro area. The cider seller wants to sell Bad Apple Ciders because of the growing market for cider and this product's unique sustainability niche. The distributors will push this product on smaller liquor retailers such as Haskell's, Surdyk's, and Ombibious. These retailers notoriously offer a local selection to a higher-paying clientele. In addition to these brick-and-mortar options, Bad Apple Ciders will be available for purchase on Drizzly and VinoShipper, two online liquor delivery services. Bottles are sold in 4-packs for \$24.00 before tax and delivery fees.

Competitive Advantage:

Cider has and will continue to compete with beer, wine, and other alcoholic beverages. However, since the target consumer already drinks hard cider, Bad Apple's competition decreases. Cider brands leading the industry include Angry Orchard, Bold Rock, 2 Towns, Ace and Schilling Cider.⁸ While a Bad Apple customer may purchase from these makers, none of these large companies produce in Minnesota. Local cideries are the backbone of the industry, this sector grew 23% in 2018.⁹ There are 19 craft cider competitors in the state of Minnesota.⁸ Of these companies, only Urban Forage Winery and Ciderhouse promote foraging for or gleaned their fruit. While some customers may not be willing to pay for local, sustainable cider, Bad Apple Cider Co. is the only production company that makes cider exclusively from salvaged fruits in the region.

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4. *The State of consumer spending: Gen Z influencing all generations to make sustainability-first purchase decisions.* Business Wire. (2021, November 23). Retrieved December 4, 2022.
 5. James, E. (2019, February 4). *CIDERCON Prep: Cider by numbers.* CIDERCRAFT. Retrieved December 2-, 2022.
 6. *Minnesota Department of Agriculture. (2022). Apples. Minnesota Grown Directory.* Retrieved December 2, 2022.
 7. *The current market and future trends of Cider.* Carling Partnership. (2019, September 4). Retrieved December 4, 2022, from <https://www.carlingpartnership.com/insights/where-is-cider-going-2/>
 8. *Published by Jan Conway, & 10, A. (2022, August 10). U.S. leading cider brands based on Dollar Sales 2021.* Statista. Retrieved December 4, 2022, from <https://www.statista.com/statistics/300775/us-leading-cider-brands-based-on-dollar-sales/>
 9. *Newhart, B. (2019, February 15). Cider succeeds with men, women and millennials; but Faces Challenge in retaining consumers.* *beveragedaily.com.* Retrieved December 2, 2022.
 10. *Find a cidery.* Minnesota Cider Guild. (2022). Retrieved December 2, 2022, from <https://mncider.org/find>

Entrepreneurial Team:

Bad Apple Cider Co.'s employees will make up several teams. The administrative team of three people will coordinate with the farmers and vendors, manage the webpage and social media, navigate licensing and permitting, and manage the rest of the staff. These team members must be willing to collaborate with one another and multitask in a fast-paced work environment. The harvesting team will consist of eight seasonal workers willing to travel up to 50 miles from Minneapolis to glean apples. These team members will have to communicate with farmers, harvest efficiently, and comply with food safety and post-harvest protocol. The production team will consist of a head fermenter and an assistant. These members are responsible for each step of the cider-making process, from pressing to packaging. They must be passionate about cider making and willing to work diligently to ensure a quality product. This team will likely call on other Bad Apple staff when extra hands are needed on the production line.

Financial Highlights and MBV Outcomes:

This concept needs around \$120,000 upfront to acquire the necessary facilities, equipment, and other start-up costs. Logistically, it makes sense to pitch this idea over the winter season and spend the summer building relationships with farmers and creating a cidery team. By next harvest season, the company could begin operation in its production space. In order to cover costs the company must produce 185,116 bottles (46,279 4-packs) in its first year. At the estimated production rates, the company can break even within 11 months of production and turn a \$1,000,000 profit 16 months later. With the help of investors, this product could be launched within the next year.

II. Consumer Problem Proof

Bad Apple Cider Co.

Fighting food waste without compromising taste.



There's nothing like the crisp, refreshing taste of a hard cider to kick off a happy hour celebration, get you through a hot, summer's day, or wrap up a long work week. With a lower ABV than hard liquor or wine and 100% less gluten than beer, it's no wonder hard ciders are increasing in popularity. But what if your cider could do more? Did you know around 35% of food that farmers produce in the US is never consumed and wasted food makes up 11% of the world's greenhouse gas emissions?¹ At Bad Apple Cider Co. we stand against food waste by seeing the potential in every "bad apple." All of our cider is pressed from salvaged fruit that would have otherwise gone to waste. Through partnership with Minnesotan orchards and fruit farms, the Bad Apple Cider team reduces climate emissions by gleaning the excess harvest and pressing it into cider you'll love. Now you can kick back and enjoy a refreshing Bad Apple cider knowing that you, too, are fighting food waste one sip at a time!

Flavors:

#1 Pick: *Bad Apple Cider Co.'s flagship draft is a crisp, semi-dry cider made using an assortment of gleaned varieties. Its balanced profile makes it a "#1 pick" among our ciders. (5.4% ABV)*

Imperfect Pear: *This blend of Minnesotan apples and pears creates a smooth, semi-sweet cider perfect for sipping. Although these fruits may look a little imperfect, they certainly make a delicious duo. (5.8% ABV)*

Bee's Knees: *This cider pays homage to the essential workers at the heart of apple production: the honey bee. The mix of fermented apples with wild Minnesotan honey creates a beautiful golden cider with a sweet and clove-forward honey finish. (6.9% ABV)*

Cranberry Craze: *Bad Apple Cider Co. has partnered with Minnesotan cranberry producers to salvage fruit from their bogs, resulting in a sharp, tannic cider. Tart cranberry and apple flavors mingle in this dry cider blend with a pungent yet fruit-forward result. (5.6% ABV)*



Sold in single-flavor or cider sampler 4-pack cases

Price: \$24.00 / 4-12 oz. bottles

Target Customer Personas:

Cider Sipper: This target audience includes adults, over 21 who enjoy cider, locally made goods, and sustainability. They already drink cider and are interested in buying Bad Apple Cider because of our mission to reduce climate emissions by creating cider from wasted fruits. They are drawn to the fact that Bad Apple Cider Co. offers the most sustainable cider in the state and are willing to pay a premium because of this. This customer is eco-conscious and appreciates that the product is made in Minnesota and supports local fruit farmers.

Cider Gifter: This audience is also made up of adults, over 21 who want to share Bad Apple Cider with their friends, family, and/or co-workers. Since this cider mitigates wasted fruit and reduces carbon emissions, the cider gifter may gift or share our 4-pack as a talking piece or to flaunt their investment in local climate action initiatives. While they may not consume the product, they are an important customer that will help grow the cidery's reputation.

Cider Seller: This audience is made up of liquor distributors who want to add a locally crafted, eco-forward cider to their product line. Minnesota state law states that all alcoholic beverages must be sold to liquor stores and bars through a distributor, rather than through direct sales. The cider seller wants to offer new, niche products to their client in order to provide relevant inventory. Ideally, this distributor works with liquor stores and restaurants that cater to the cider sipper, outlined above.

Typical Costumer

Lance

28, Caucasian, Male

ComSci Engineer

St. Paul, MN

LIFESTYLE:

Bikes to work

Enjoys hiking & climbing

Supports local businesses

DRINKING BEHAVIOR:

Goes out to drink at least 1x/wk.

Prefers cider over beer

Supports MN Cideries

STRUGGLES:

Seeking the latest market trend

Tired of limited local cider options

Makes eco-based purchases

SOURCE OF INFO:

Social Media:

(Instagram, Facebook, TikTok, Twitter)

Word of mouth:

(Friends, Family, Coworkers)





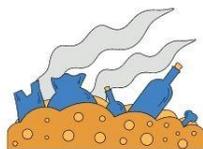
Gleaning for the Environment

30% of global food loss occurs at the farm production and harvest stage.

Gleaning projects have the power to divert

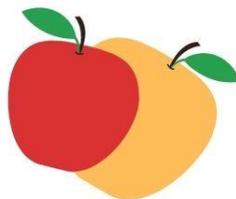
78.5k
TONS

of food from rotting



reduction of

25.7k
METRIC TONS
CO₂e



Cider Market

There are
19
cider companies in the
state of Minnesota



The market size of the Cider Production industry is expected to increase by



2.4%
in 2022

IV. Product Problem Proof

In 2019, over 35% of food was wasted in the United States.^{11,12} Food waste occurs across the food supply chain, but prevention starts at the production level. Of the nearly 17 million tons of surplus produce generated at the farm level, a staggering 82% reached maturity but was left behind after harvest.¹¹ Industry farmers choose not to harvest their crops for several reasons. Produce is highly perishable. Many fruits and vegetables are susceptible to disease or insect infestation, leaving them to rot on the vine, unharvested. More commonly, however, edible fruits and vegetables are left in the fields because they do not meet the strict cosmetic standards that exclude imperfect-looking produce. Farmers may also struggle with low market prices and high harvest costs that make it uneconomical for farmers to gather their entire crop. Additionally, labor shortages compound this problem, particularly in the fruit and vegetable industry, where the harvest is not often mechanized. Ideally, farmers would be able to sell their blemished or low-grade produce, but producers often lack the resources to harvest and market excess fruits and vegetables.

The impact of unharvested food extends well beyond the pockets of produce farmers. While tons of edible fruits and vegetables rot in fields outside the Twin Cities, hundreds of thousands of Minnesotians struggle with food insecurity.¹² In 2020, approximately 18% of Dakota County residents were food insecure, which is more than double the state's average.¹³ Food waste becomes a human injustice when unnecessarily discarded produce could have fed a hungry family. Food waste is also an environmental concern. As the single greatest component of landfills, wasted food emits a potent greenhouse gas, methane, into the atmosphere. Methane emissions play a significant role in climate change.¹⁴ When produce goes unharvested, the energy, water, and fertilizer it takes to grow those fruits and vegetables go to waste. Overall, unharvested crops waste farmer resources, fail to feed those who face food insecurity, and increase the impact of climate change.

Many organizations recognize this issue and have come up with solutions to optimize the harvest. A market for "seconds" has emerged, referring to edible produce that does not receive the top grade needed to enter the conventional wholesale market.¹⁵ Additionally, specialized companies with a mission to reduce food waste and relieve hunger have modeled a method to donate excess produce to those in need. These typically non-profit companies do this through gleaning. According to The Food Group, gleaning is the act of collecting extra produce from farms, orchards, and gardens that would otherwise go to waste.¹⁴

11. ReFED, *Key Action Area: Optimize the Harvest*. (2019). Long Island City. Retrieved 2022.

12. Coleman-Jensen, A., Rabbitt, M. P., Hales, L., & Gregory, C. A. (2021, November 8). *The prevalence of food insecurity in 2020 is unchanged from 2019*. Economic Research Services. Retrieved February 2022.

13. Grantham, R., Lau, J., & Kleiber, D. (2020). *Gleaning: Beyond the subsistence narrative*. *Maritime Studies*, 19(4), 509-524. <https://doi.org/10.1007/s40152-020-00200-3>

14. Smith, K. (2018, May 9). *Gleaning fresh produce to fight hunger*. The Food Group. Retrieved

It typically occurs on smaller farms and is conducted by networks of volunteers organized by non-profit organizations. People practiced gleaning as a humanitarian act since ancient history when farmers intentionally left crops in their fields for those in need of food to collect. In recent years, gleaning has become a popular way to reduce food waste, and many organizations have adopted gleaning initiatives across the nation.

Hard cider is a unique product in that blemished or weather-damaged apples can be pressed and fermented into a marketable beverage. In this regard, hard cider has the potential to contribute to sustainable food systems by creating a viable value-added market for harvest seconds. In 2017, the Center for Integrated Agricultural Management at the University of Wisconsin- Madison conducted a study analyzing 44 cider producers in the North Central Region of the US. This research found that cider makers showed a strong preference for local apples.¹⁶ In addition to procuring 15% of apples (by volume) from their own orchards, they bought 55% from local orchards (defined here as “within state or within 100 miles of the business”). An additional 21% of apples came from regional orchards (defined here as “from nearby or neighboring states, less than 500 miles”). Respondents procured nine percent of apples from U.S. orchards that were 500 or miles away, and less than one percent from international orchards. These statistics demonstrate that the smaller, craft cider industry leans towards using locally sourced apples. The study also explains that cideries employed a range of methods to procure apples, juice, and/or concentrate. Twenty-nine companies reported pressing their own apples, 19 had apples custom pressed, 27 companies purchased juice, and six purchased apple juice concentrate. The focus among these cideries on local procurement of apples and fresh juice runs counter to the approach of larger cider companies, which primarily purchase apple juice concentrate that is often imported.¹⁷ Research found that the cosmetic appearance of the apples was rated as the least important among cider makers in choosing which fruit to buy. This suggests that cider makers are creating new markets for scarred, blemished, misshapen, or otherwise imperfect apples that do not make the grade for fresh market sales. Reduced concern about the cosmetic appearance of fruit also offers growers of cider-specific apples new management options that may require fewer inputs and less spraying to control pests or diseases.¹⁶

Another important feasibility aspect is fruit selection. Since Bad Apple Cider Co. relies solely on gleaned apples, the likelihood of procuring 100% Minnesotian cider apples for production is not likely. Cider-specific apples tend to have high sugar content (brix) to produce stronger, full-bodied ciders, and they feature tannins that add bitterness or astringency.¹⁶ Whereas eating apples are typically engineered for eating and or juicing. UW-Madison’s report found that due to scarcity and high cost, many cider

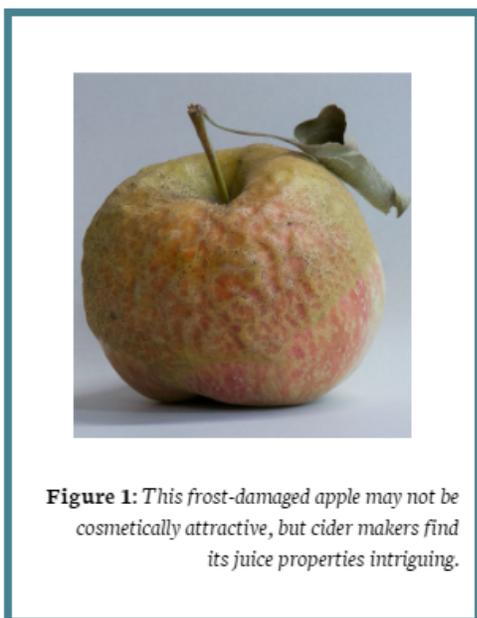
15. *USDA National Agricultural Statistics Service (2017). Census of Agriculture.*

16. *Raboin, M. (2017, July). HARD CIDER IN THE NORTH CENTRAL REGION: Industry Survey Findings . UW-Madison.*

17. *Becot, F., T. Bradshaw and D. Conner (2016). “Apple Market Expansion through Value-added Hard Cider Production: Current Production and Prospects in Vermont.” HortTechnology April 2016 26:220-229.*

makers are unwilling to go out of their way to purchase cider apples and make their cider using eating varieties. Bad Apple Cider Co. will glean and process both cider and eating apples to use in their product in order to achieve a well-balanced end product.

Although making cider is an intrinsically sustainable product, in that producers often add value to non-marketable produce (Figure 1); bad apple takes their commitment to sustainability a step further. Of the 19 cider companies in the state, Bad Apple is the only cider production to press and ferment cider using 100% gleaned apples. Since gleaning has direct effects on reducing carbon emissions and increasing revenue for Minnesotan orchards, Bad Apple Cider Co. brings a new approach to the Minnesotan craft cider industry. In comparison to the larger cider production, which often imports juice from foreign processors, Bad Apple Cider has a significantly smaller carbon footprint. This cider actively fights food waste while promoting local growers regardless of harvest constraints such as seasonal damage (including frost, hail, heatwaves, heavy wind, or rains) or farm worker shortages. This relationship helps insure revenue for farmers despite climate instability and rising labor shortages.¹⁸ Customers will purchase Bad Apple Cider, not only because it is deliciously crafted from local apples, but because the operation mitigates sustainability issues in the current farm industry. If produced, Bad Apple Cider would be the most sustainable cider on the market in Minnesota because it's made almost entirely from waste. Consumers who value sustainability and local farming will have an emotional connection with this product because it aligns with their values. Through purchasing this product, the customer will feel good about investing in a local business that gives back to its partners, the farmers.



18. *America's worker shortages in the agriculture and Food Industries: Direct impact on food waste and inflation.* National Immigration Forum. (2022, November 7). Retrieved December 19, 2022.

19. *Cider Apple Varieties.* Cider School. (2015, September 29). Retrieved December 8, 2022.

V. Market Problem Proof

Although cider, as an alcoholic beverage, competes with wine, beer, liquor, and hard seltzers, the market for hard cider is steadily increasing at a faster rate than the rest. In fact, a study at Monclair State University states, “hard apple cider is the smallest, but fastest growing sector of the alcoholic beverage industry.”²⁰ In fact, the cider industry is expected to grow by 2.4% in 2022.²¹ Cider brands leading the national industry include Angry Orchard, Bold Rock, 2 Towns, Ace and Schilling Cider.²² Although a Bad Apple customer may purchase from one of these large cider companies, these five companies are not deemed craft cideries and, therefore, do not have the same competitive edge as local, craft cider. Craft ciders highlight the excellence of taste, are typically made in smaller batches using traditional production methods and are often only available locally. Local cideries are the backbone of the hard cider industry; this sector grew 23% in 2018.²³ In addition to expanding, the industry “show[s] a great deal of potential to improve rural agricultural economies while supporting the food localization movement that is integral in connecting consumers to the environment.”²⁰ This is, in part, due to the demographic of cider drinkers investing in the industry.

The market for cider consists of younger, wealthier, and more diverse customers than those drinking beer. The highest percentile of cider drinkers includes Millennials and Boomers (at 69%).²⁴ Despite the trend that cider consumption decreases with age, folks ages 23 to 40 years old and their parents, ages 53 to 71, drink more cider than other age groups. That said, Gen Z will likely be the primary cider age demographic as more Gen Z-ers come of age. Today, 20% of Gen Zers over 21 claim to drink cider.²⁴ Gen Z is also the age demographic most likely to make sustainability-conscious purchasing decisions. A survey conducted by the University of Pennsylvania found that nearly 90% of Gen Z consumers said that they would be willing to spend an additional 10% for more for sustainable products. The survey also found that 75% of people in Gen Z will make values-based purchase decisions.²⁵ Meaning that the majority of up-and-coming cider consumers will be more likely to spend more money on sustainable cider.

Currently, there are 19 craft cider competitors in Minnesota. These Minnesotan Cideries include Urban Forage Winery and Ciderhouse, Number 12 Cider, Minneapolis Cider Co., Addmot’s Apple Farm, Sweetland Orchard, Sponsel’s Minnesota Harvest, Keepsake Cider, Falconer Yards, Milk and Honey Ciders, Yellow Belly Cidery, Tallgrass Cider, Hoch Orchard, Carlos Creek Winery, Wind State Cider, Duluth Cider, Painter Creek Cidery and Winery, Salem Glen Winery, Mousse Sparkling Wine Co, and Canossa Grove Cidery.²⁶ Of these cider producers, only Urban Forage Winery and Ciderhouse promote foraging for or gleaning their fruit. This makes Bad Apple Cider Co. the only Minnesotan cider company

20. Smith, Meghann N., "Sustainability of Hard Apple Cider : An Environmental and Socio-Economic Assessment" (2021). *Theses, Dissertations and Culminating Projects*. 698.

21. *Industry market research, reports, and Statistics*. IBISWorld. (2022). Retrieved December 2022.

22. Published by Jan Conway, & 10, A. (2022, August 10). *U.S. leading cider brands based on Dollar Sales 2021*. Statista. Retrieved December 4, 2022.

to produce cider exclusively from salvaged fruit. This provides Bad Apple with a niche sustainability angle within the local, craft cider market. Because the market aims to sell a more sustainable product to an existing cider market, Bad Apple Cider is a disruption within the cider industry. Unlike some of the other companies, Bad Apple Cider Co. will not grow its own apples, purchase apple juice or serve cider from a tap room. In order to focus on creating quality cider, Bad Apple Cider exclusively produces cider for distribution from 100% gleaned products, making it the most eco-friendly cider in the state.

There is an existing market for Bad Apple Cider among current Minnesotan cider consumers. As outlined above, the cider-drinking population tends to care about the environment and make eco-based purchases. Therefore, local cider drinkers will buy into the idea of a cider that prevents food waste and promotes local farms. Bad Apple Cider will initially work with Minnesotan distributors that have relationships with urban liquor stores. Some of the Minnesotan distributors may include Bernick's, Up-North, Southern Glazer's, Binder-Edelstein, and Johnson Brothers. Since Minnesotan law requires alcohol to be sold through wholesale distributions, business with one of these companies is essential to selling in Liquor stores or bars. Many of these distributors work with family-run, local liquor stores that Bad Apple's customers are more likely to purchase from based on their values-based purchasing patterns.²⁵ Some of these smaller liquor retailers that consistently carry local ciders in the Metro area include Haskell's, Surdyk's, and Ombibious.

In addition to selling to retail distributors, Bad Apple will be sold online. Using third-party online retailers such as Drizzly and VinoShipper, Bad Apple Cider Co. will offer online sales and delivery services within the state on the Bad Apple webpage. Offering both in-person and online purchasing avenues is critical due to the wide age range and shopping habits of cider consumers. Recent research shows that the Gen Z consumer is an omnichannel shopper: 51% of study respondents reported that they shop mostly in-store for everyday items, such as cider, while 27% preferred online shopping.²⁷ Although the company hopes to expand its market down the road, initial sales will take place in stores in the Twin-Cities Metro area and online across the state. Once the company is established, there will be consideration of region-wide market expansion and national online delivery.

In 2022, the cider market size is worth US\$ 4.54 billion and is anticipated to have a value of US\$ 14.7 billion by 2027 with a compound annual growth rate of 4.6% during 2022-2027.²¹ Once Bad Apple Cider Co. reaches US\$ 1,00,000 in revenue, the company will hold 0.02% of the hard cider market share.

23. Newhart, B. (2019, February 15). *Cider succeeds with men, women and millennials; but Faces Challenge in retaining consumers*. Retrieved December 2, 2022

24. James, E. (2019, February 4). *CIDERCON Prep: Cider by numbers. CIDERCRAFT*. Retrieved December 2, 2022

25. *The State of consumer spending: Gen Z influencing all generations to make sustainability-first purchase decisions*. Business Wire. (2021, November 23). Retrieved December 4, 2022.

26. *Find a cidery*. Minnesota Cider Guild. (2022). Retrieved December 2, 2022.

CIDER BRAND	APPLE SOURCE	QUALITY LEVEL	SUSTAINABILITY LEVEL
Angry Orchard	Imported apple juice concentrate	Non-craft	Low
Duluth Cider	Minnesota fresh apples	Craft	Medium
Bad Apple Cider Co.	Minnesota gleaned apples	Craft	High

Table 1: Feature Comparison

Table 1 compares how cider competitors compare to Bad Apple Cider Co. Angry Orchard imports their apple juice concentrate from France and Italy to brew in the United States. Whereas Duluth Cider Co., a company more similar to Bad Apple, sources their apples from Minnesotan orchards. This table highlights the fact that Bad Apple Cider Co. crafts their product using gleaned apples from Minnesota's orchards. Apple sourcing is reflected in the sustainability level. Bad Apple creates a more sustainable product because the apples are salvaged and locally sources. Since Duluth Cider sources local apples for their cider they are ranked with medium sustainability. Since Duluth Cider and Bad Apple Cider Co. press their own apples using traditional methods and creat small-batch ciders, the companies are considered craft cideries, whereas Angry Orchard uses commercial methods to mass produce cheaper cider.

VI. Business Model Problem Proof

The target consumer and customer, the cider sipper, will purchase a 4-pack of Bad Apple Cider at their local liquor store or online. The cider sipper is interested in trying this cider because it is the newest and most sustainable cider on the market. The consumer is drawn to the fact that it's made locally and wants to compare this cider with other minnesotan ciders they've tried before. Some costumers may seek out this product while others buy it on impulse or out of curiosity. Bad Apple is able to draw in new consumers by advertising its sustainability model on the cider packaging. Additionally, Bad Apple will use targeted advertisements and an engaging presence on social media to draw in the target customer.

In order to generate \$1,000,000 in revenue Bad Apple Cider Co. must sell 68,457 4-packs in retail stores and online. It is projected that this will take around two and a half years of production. The company will achieve these sales because cider drinkers are interested in purchasing a sustainable product, such as gleaned cider. By purchasing Bad Apple Cider they gain the benefit of drinking delicious craft cider that aligns with their beliefs, which makes the customer feel confident in their purchase. If the label that reads, "Minnesota's most sustainable hard cider" isn't enough, the customer can scan the QR code on every bottle and case to learn more about the gleaning process and the company's impact on food waste reduction. Customers can also reach this webpage through social media and the Bad Apple Cider Co. Website. As outlined above, most younger generations drink cider and are concerned about the environmental health of the planet. While drinking Bad Apple Cider, these concerned consumers can

drink assured that their apples are both sustainably and ethically sourced. They can learn more about the companies sustainability practices and watch short, engaging, educational videos on Bad Apples impact online. Given the fact the cider is uniquely sustainable, the cider is fairly priced. Other Minnesotan craft ciders retail for an average of \$17.00 for a 4-pack. Target customers have shown to spend more money on local and sustainable products, at \$24.00 for a 4-pack, customers have an opportunity to drink a trendy new cider and invest to a cause they care about, environmental sustainability. Ordering online will be streamlined by selling through existing online distributors. Customers can land on these ordering pages through social media sites or the Bad Apple Cider Co. webpage. Purchasing in stores is made easy, since Bad Apple Cider Co will be displayed with other local ciders.

Most other Minnesotan cider companies sell through onsite taproom sales. However, since Bad Apple Cider Co. doesn't have a public taphouse, this avenue for sales is not possible. Otherwise, competition also tend to distribute in cans or bottles to local liquor stores. Bad Apple Cider will differentiate itself on the liquor store shelf through informative and eye-catching packaging, promotional in-store tastings and a robust online marketing campaign. If the mission and sustainability model is clearly defined for the customer, they will be more likely to purchase Bad Apple Cider online or in store. It is important that the quality of gleaned apples is highlighted in this campaign as well. Some customers may assume that the quality of cider decreases because the apples aren't intentionally grown for cider production. The Bad Apple team will use their platform to educate consumers about the cider making process and highlight the value in gleaned fruit. After all, most cider apples are "imperfect" fruits. It is vital that customers understand that quality cider can and is made from harvested "seconds." As outlined in the Product Problem Proof (p. 7) apples are left in orchards for a number of reasons, not all of which are cosmetic. Customers and Consumers need to know that using unharvested fruit is a net benefit and does not compromise cider taste.

Bad Apple Cider Co. produces a variety of flavors which may include "#1 Pick," "Imperfect Pear," "Bee's Knees," and "Cranberry Craze." These ciders represent a variety of flavor profiles and ingredient pairings using Minnesota-sourced fruit and goods. These ciders are expected to rotate based on product availability and seasonal conditions. As aforementioned, the characteristics of apple varieties differ significantly, especially between cider apples and eating apples. Bad Apple's harvest is at the discretion of its farming partners, the weather, the workforce, and the economy of the apple market. This means that the varieties used each season are expected to vary. Bad Apple Cider Co. prioritizes producing quality cider over supplying a uniform line of ciders over time. The company's master cidemakers determine what cider flavors will be produced each season given the brix, tannins, acidity, quality, and other characteristics of the apples harvested.¹⁹ The following cider flavors exemplify the variation in the style of ciders that the company may produce at a given time:



“#1 Pick” is coined as Bad Apple Cider Co.’s flagship draft. This is a crisp, semi-dry cider made using an assortment of gleaned varieties, including Harrison, Wickson, Gravenstein, or another high acidity, low tannin apple. These varieties provide a tart, forward flavor without the dry mouthfeel that other apple varieties can have. This cider’s balanced profile makes it a “#1 pick” among our ciders. As a sharp cider, the drink has more than 0.45% malic acid, less than 0.2% tannins, and 5.4% alcohol per bottle.



Imperfect Pear includes a blend of Minnesotan apples and pears creating a smooth, semi-sweet cider perfect for sipping. Apples used in this cider may include Dabinett, Chisel Jersey, Ellis Bitter, Medaille d’Or, Yarlington Mill, and/ or other dry and tart varieties. Sweeter pear varieties such as the University of Minnesota’s Summercrisp are used to balance the tannic apples. Although these fruits may look a little imperfect, they certainly make a delicious duo. This cider is characterized as bittersweet and is characterized as having less than 0.45 % malic acid, more than 0.2% tannins, and 5.8% alcohol per bottle.



Bee’s Knees pays homage to the essential workers at the heart of apple production: the honey bee. As pollinators, honey bees play an important role in carrying pollen between blossoms. This helps fertilize the apple trees so they can produce fruit and we can, in turn, drink cider! The mix of fermented apples with wild Minnesotan honey creates a beautiful golden cider with a sweet and clove-forward honey finish. This sweet cider highlights apple varieties including Gala, Newtown Pippin, Honeycrisp, and/or Roxbury Russet. The higher sugar content creates a higher alcohol level at 6.9% per bottle, with low malic acid and tannin levels.



Cranberry Craze is a cider that showcases gleanings beyond orchards. Bad Apple Cider Co. partnered with Minnesotan cranberry producers to salvage fruit from their bogs, resulting in a sharp, tannic cider. Tart cranberry and apple flavors mingle in this dry cider blend with a pungent yet fruit-forward result. Apples used in this cider might include Kingston Black, Porter’s Perfection, or another high acidity, high tannin variety. This cider is slightly sweetened after fermentation to counter the dry and tart elements in this drink. Cranberry Craze is a bittersharp cider with more than 0.45% malic acid, higher than 0.2% tannins, and 5.6% alcohol per bottle.

All cider will be sold in 4-packs. Although the cider flavors may rotate depending on the season, the company will consistently offer a minimum of four flavor options. These bottles may be mixed into a variety 4-pack or sold as a uniform flavor 4-pack. All cider will be packaged in 12oz glass bottles. Bad Apple may also sell and distribute kegs for a wholesale market, however the feasibility of this prospect has yet to be explored.

The company must produce 185,116 bottles (46,279 4-packs) annually to meet the monthly burn rate. This equates to 46,279 bottles produced quarterly, 15,426 produced monthly, 3,560 produced weekly and 507 bottles (127 4-packs) produced daily to break even. In order to profit \$1,000,000 the company must produce 273,825 bottles (68,457 4-packs.) Due to the volume of the tanks and the amount of time cider needs to ferment, Bad Apple Cider production can produce 210,000 bottles annually. The company will break even within the first 11 months of production at the rates listed above. This means that, given a constant production scale, the company can profit \$1,000,000 just under 16 months after they break even. All in all, the company will earn \$1,000,000 within its first two and a half years of production. See Section X for more detailed financial information.

VII. Operations/Commercialization Problem Proof

In order to produce a business plan, several assumptions must be made. Below is an explanation of the direct costs involved in making cider. These costs reflect the price of production per bottle of “#1 Pick” cider, using only apples. The direct costs include 12-oz bottles (\$0.44), bottle caps (\$0.08), bottle labels (\$0.25), and 4-pack cardboard carriers (\$0.04). These numbers reflect the wholesale costs for the packing materials. The star of the cider, apples, are purchased at \$1/ pound. Traditionally cider apples are grown and sold for anywhere between \$3-\$23 / pound. The partnering farmers can afford to sell the produce at this reduced rate because the apples gleaned are by the Bad Apple team and would otherwise be unharvested. The costs of the other cider flavors may fluctuate slightly due to the cost of alternative ingredients, which are not accounted for in this analysis.

The automated counter-pressure filler needed to fill bottles operates at a rate of 108 bottles per hour. If the production team works full-time, the cidery pays their staff \$0.57 per bottle to ferment the cider and maintain this fill rate. Although the administrative, harvesting, and production teams earn varying incomes, the average labor costs were considered in calculating the cost of labor per bottle. Together, the total direct cost of cider production equals \$2.13 per bottle.

The monthly operation, or burn rate is calculated to include to cost of equipment, production space, utilities, miscellaneous fees and labor. A lot of equipment goes into this scale of cider production. It is estimated that Bad Apple Cider Co. will produce around 18,500 gallons of cider annually. This scale of operation requires pressing machines, six stainless-steel fermentation, and holding tanks, two carbon dioxide tanks, two pressure tanks, two counter-pressure bottle fillers, a capping machine, a labeling machine, and a used transit van (and its maintenance) for harvesting. These high upfront costs equal \$34,700 and are leased to Bad Apple Cider Co. at a 6% interest rate. In addition to equipment, the cidery rents a commercial brewing space in Minneapolis for \$4,000. After utilities and licensing costs, facilities reach \$8,000. Employing the 13-person staff averages \$10,000 per month. The marketing budget for mainly online sales promotion is \$5,000 monthly. The total burn rate including the capital, facilities, sales, and labor reaches a total of \$59,700.

Several steps need to be taken in order to move this product from the concept stage to the marketplace. To start, Bad Apple Cider Co. need to communicate with current apple farmers to get a better understanding of the market for gleaned apples. This conversation has been initiated within the University of Minnesota, but the researchers were unable to estimate the amount of unharvested apples in the state annually. Once Bad Apple builds relationships with farmers, they can begin to scout for a production site and a master craft brewer. Due to the variety of apples the team will process, the cider maker must be highly skilled in chemistry and have at minimum of five years experience in cider production. Once a production space and producer are secured, the administrator will work with the cider maker to plan the coming season. Together the two will make a hiring, marketing and production timeline to prepare for the busy harvest season. In the summer, the two will hire an administrative team, including a marketing professional and a harvest and production staff. Prior to the harvest, the team will purchase and assemble the necessary cidermaking equipment, and train staff for the harvest. Additionally, the administration will build relationships with distributors in hopes to sign contracts as soon as there is product to sample. Meanwhile, the marketing team will promote the upcoming sustainable cider online. Finally, the team will source a Minneapolis artist to design the company logo and contact them to design future cider flavor labels.

Throughout this journey, finding a talented and experienced craft cider maker is essential. Additionally building professional relationships with the farmers and the distributors is critical. Finally hiring a talented marketer is key in the success of Bad Apple Cider Co. Once the cider is produced, there will be ongoing tests to improve and better understand the product. These tests will compare fermentation methods, shelf life and, nutritional information, pH and more. The team will be sure to track and promote the weight of apples salvaged throughout cider production. This running tally will be posted on the Bad Apple website, so that customers can engage with the sustainability element of this cider.

Materials	Cost
12oz bottles	\$0.44 per bottle
4-pack cardboard boxes	\$0.04 per case
apples	\$1.50 per bottle
bottle caps	\$0.08 per cap
Label	\$0.25 per bottle
TOTAL	\$2.06

Table 2: *Material Costs*

TTB REQUIREMENTS:²⁷Label must include:

- Brand name
- Name and address of the bottler
- Class, type or other designation
- Net contents
- Alcohol content
- Ingredient, nutrition, and allergen listings
- Government Health Warning
- Various declarations

- Hard cider should be less than (not equal to) 8.5 percent alcohol by volume (abv), up from 7 percent.
- Hard cider should have a maximum allowable carbonation level of 0.64 grams of carbon dioxide per hundred milliliters of wine, up from 0.392.

VIII. Resource Problem Proof

Creating a cidery requires a lot of overhead cost. This concept would require around \$120,000 upfront to acquire the necessary facilities, equipment, and account for other start-up costs. However, there are still many questions that need to be addressed before the company begins sourcing funding. For example, Bad Apple has yet to calculate if Minnesotan apple production and the unharvested outputs of this production equates to the amount of apples Bad Apple needs to cover costs in the first year. Current estimates demonstrate that 277,674 pounds of apples are needed to produce 185,116 bottles of cider in a year, the amount needed to breakeven. This potential problem could be addressed by sourcing apples from neighboring states or supplementing the self-pressed apples by purchasing juice from local orchards. This however, would chance the product model and sustainability analysis would be required to ensure that the product is still a carbon neutral or carbon positive product. Regardless of this product shift, more sustainability metrics and emission comparisons are necessary in order for the company to claim they are “Minnesota’s most sustainable cider.” Once these are completed, the results will significantly aid in marketing and customer belief.

The production of this cider could also shift. Throughout this concept development, Bad Apple founders considered outsourcing production to a testing facility such as the Lab in Minneapolis. However, Bad Apple could not attain an accurate quote for the cost of outsourcing production. Even if fermenting

27. U.S. Department of Treasury. (n.d.). *Alcohol Facts and Questions - TTB*. Alcohol and Tobacco Tax and Trade Bureau. Retrieved December 10, 2022.

and bottling production continued independently, the company could certainly reduce costs by labeling the bottles offsite.

Finally, as mentioned previously, the market for Bad Apple Cider could shift. The feasibility plan dictates that the cider is exclusively sold in Minnesota to reduce issues with liquor distribution laws and shipping complication. The company could certainly scale up and expand to a market within the Midwest region. However, a national market may not be attainable due to the scale of the operation and the target customer's interest in local, rather than domestic, cider. Although the company plans on creating an engaging marketing campaign, including artistic labels and an emphasis on social media advertising, the details of these advertisements are not determined.

Several of these questions could be addressed through conversation with key players. Some of these players may include current cider makers in the industry, distributors, apple farmers and harvesters, marketing professionals, manufacturers such as the Lab and the target audience, cider sippers. Conversations with these players will certainly help identify the needs of Bad Apple Cider Co. and the feasibility of this product.

Cider can be a difficult product to produce and market throughout the year because of the seasonality of the harvest. Bad Apple will make a harvest plan to press and begin fermentation for as much as the harvest as possible in the peak apple harvest months, from August through November. Depending on the year's crop and type of ciders selected to make, some of the cider may be aged and bottled later in the year while the rest will be processed, fermented and bottled rapidly. Once the cider is bottled, labeled and packaged, it can be sold to distributors and stored in their warehouses. Another feasible option is that the cider be juiced and stored for fermentation and processing later in the year. This process will help to spread out cider production and ensure that cider is made throughout the year. Either way, however, the Fall will be the busiest season for harvest and post-harvest production at Bad Apple Cider Co.

IX. Recommendation

Bad Apple Cider Co. is a go! The next steps include talking with Minnesotan apple farmers to see if there is enough product availability to entirely glean apples for their production. If there is not, the company may consider sourcing apples from neighboring states. Additionally, as suggested above, Bad Apple Co. should host conversations with the many involved players in order to broaden its perspective as the business moved into action steps. Once more of the answers are solidified, Bad Apple administration can begin sourcing funding for a production site, cider maker and initial supplies.

X. Concept Portfolio

VOC Consumer questions:

1. What is your alcoholic beverage of choice?
2. On a weekly basis, how frequently do you drink?
3. What are your thoughts on hard cider?
4. Who do you think is the primary consumer of hard cider?
5. Does your local bar offer a cider selection?
6. What is your preferred cider brand?
7. Do you know where those cider companies source their apples?
8. Do you care?
9. Are you curious to know more about the environmental impacts of cider production?
10. Are you familiar with the concept of gleaning?
11. How does harvesting “seconds” to produce cider make you feel?
12. What is your preferred packaging for a hard cider beverage (12 oz. can, 16. Oz tall can, 355 mL glass bottle, 1L glass bottle, etc.)?

MBV Inputs:

BASELINE 1:	<i>If We Charge This:</i>	\$6.00								Bad Apple Cider Co.
BASELINE 2:	<i>And Our Costs Are:</i>	\$0.57	LABOR + COMMISSIONS + ROYALTIES							
		\$1.56	MATERIALS + DIRECT MFG COSTS							
		\$2.13	TOTAL DIRECT COSTS							
BASELINE 3:	<i>Gross Profit per unit:</i>	\$3.87	64.50%	Gross Contribution Margin						
BASELINE 4:	<i>Monthly Burn Rate is:</i>	\$59,700								
BASELINE 5:	<i>Breakeven at:</i>	185116	46279	15426	3560	507	*127 4-packs/day			
		<i>Per : YEAR</i>	<i>QTR</i>	<i>MONTH</i>	<i>WEEK</i>	<i>DAY</i>				

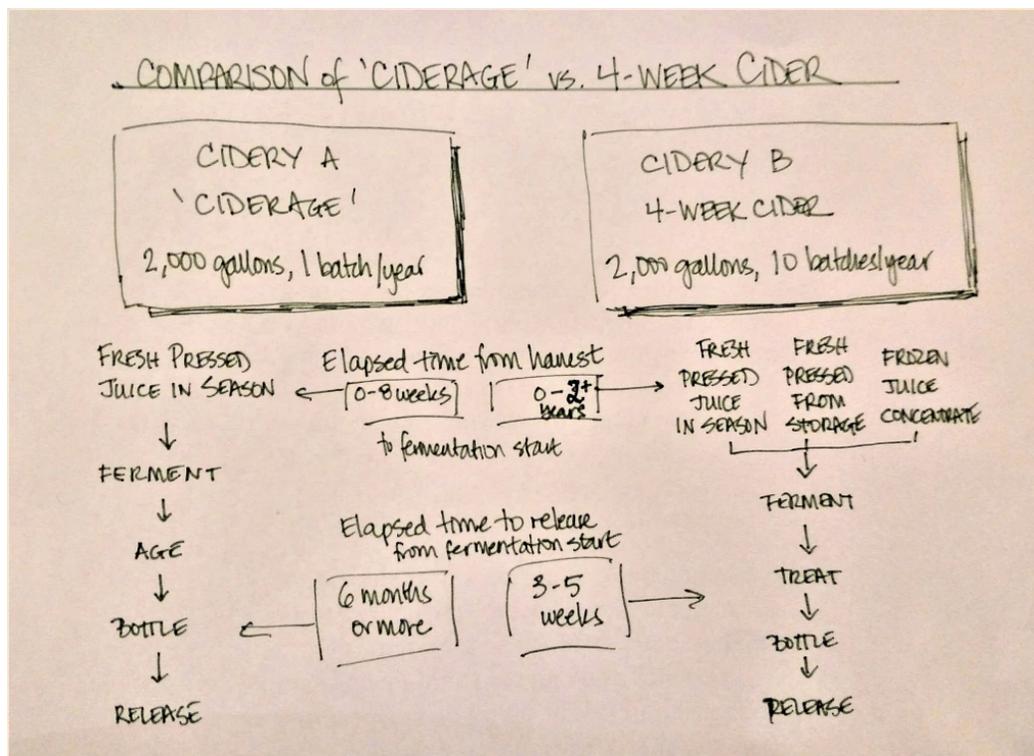
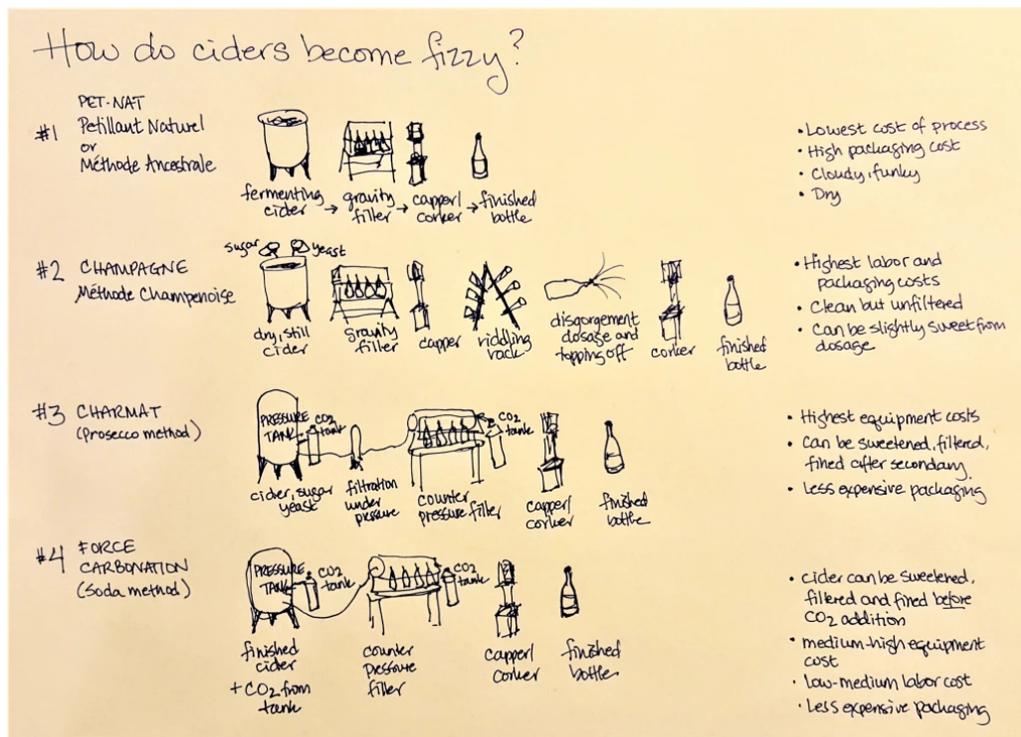
Monthly Operations Breakdown:

Facilities All-in:	\$8,000	
Avg. Labor	\$10,000	
Sales-Marketing:	\$5,000	
Equipment	\$36,700	leased at 6%
TOTAL	\$59,700	

Equipment Costs:

EQUIPMENT	COST
Grinding/ pressing Equipment	\$300.00
6 x 140G stainless-steel fermentat	\$1,500.00
2 x Co2 Tank	\$300.00
2 x Pressure Tank	\$200.00
2 x Counter Pressure Filler	\$200.00
Capper	\$700.00
Label maker	\$1,500
Van/ Maitnence	\$30,000
TOTAL	\$34,700.00

Fermentation Notes:



Figures from Production costs. Cideromics. (2017). Retrieved December 8, 2022.

XI. Presentation Slides



The Problem:

1/3 of food is wasted.

30% Of food waste happens at the farm production level

22.9% Unharvested produce is marketable



The Solution:
Bad Apple Cider Co.

- Craft Hard Cider
- 100% gleaned apples
- Supports MN farmers
- Cider drinkers sip for the planet



Gleaning:

“ The act of collecting extra produce from farms, orchards, and gardens that would otherwise go to waste ”

Bad Apple Cider Co. Sustainability

How will environment benefit from our practices?

How will customers benefit from our sustainability?

How Bad Apple Cider is Produced:



Harvest

MN orchards
Gleaning Team



Production

Fermented in Mpls
274,000 bottles / year



Marketing

Distributed to:
TC Liquor stores
Online

Go!

BREAK EVEN:
46,279 4-packs



\$1M in REVENUE:
68,457 4-packs

?

Q & A



How will you deal with apple seasonality using a gleaning model — will this be a seasonal product or will you produce seasonally and sell year around?



Selecting high grade apples is essential for premium product quality – how does imperfect apples/fruit impact final product flavor from batch-to-batch in cider products?



What are your social media marketing plans to leverage the Bad Apple name to gain traction in the market?

CHEERS!