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Written Thesis  
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## **The Farmers Hand Mobile Market**

### **Introduction**

We know less about the food we are consuming today than any other point in human history. In recent decades, food distribution systems in the United States have become increasingly complex, relying on imports and industrial farming techniques to feed an ever-growing population. Not only do these practices take a tremendous environmental toll, they also create an increasingly prominent disconnect between producers and growers. This problem is especially prevalent on college campuses and marginalized communities with little access to fresh produce as a necessary part of a comprehensive diet. Without ample resources, participating in the local food system is rarely seen as a priority. In a time when lifelong habits are being established, it is critical that students began understanding the importance of supporting sustainable farming, while increasing access to this produce to make healthy choices a feasible option.

For my project, I designed and fabricated a mobile produce stand that serves as retail space for local food producers, as well as a compact learning kitchen in order to help foster communities with a commitment to a holistic understanding of agriculture. My goal through this project is to encourage

individuals to reexamine their relationship to the local food system while re-humanizing the connection between food consumers and producers.

## **Contextual Discussion**

While fresh, local produce has had a long stigma of being excessively expensive, a general shift has occurred to view these foods as healthful, appealing, and sustainable. There still remains a significant disconnect, however, as many populations, including students at the University of Michigan and other college campuses, are lacking the availability and consistency of fresh food to maintain a healthy lifestyle. This is a particularly prevalent issue for students living off-campus, without a reliable meal plan through the university dining hall. Currently, there are no major grocery stores within walking distance from campus, forcing many students to seek out unhealthy options. A handful of centrally located businesses, like Walgreens and 7/11, claim to have a produce and grocery section, but one would be hard-pressed to defend that designation. The produce at these locations is almost always near spoilage, and lack the diversity needed for a healthful diet. There are several small grocery emporiums located near campus but the prohibitive cost makes shopping there unattainable for many students. A full two-weeks worth of groceries cost nearly \$200 at

these retailers, twice the \$93 budget set by the USDA for a comprehensive diet.<sup>1</sup>

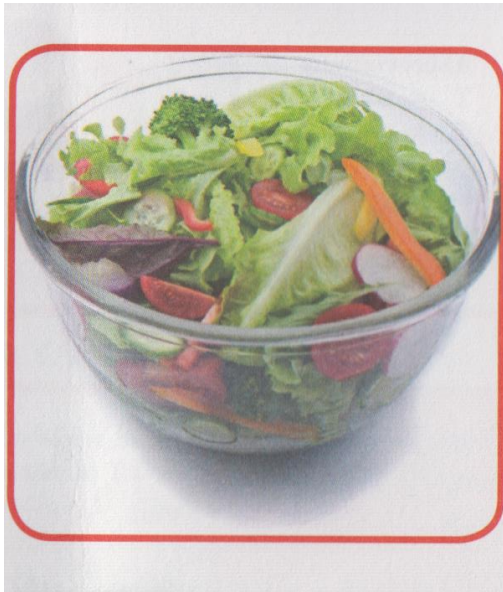
With a community of 80,000 people making independent food decisions each day, this is a critical need to address, particularly in a university with strong sustainability guidelines. However, no university sustainability initiatives currently address the vast majority of the UM students who live off-campus and have limited ability to make independent food decisions that are healthful, affordable, accessible, and sustainable. It is clear that the university has a strong grasp of these values already as is demonstrated by the campus sustainability goals. One goal set by the university is to "Purchase 20% of U-M food in accordance with U-M Sustainable Food purchasing Guidelines by 2025."<sup>2</sup> Currently, only about 12% of the university's food sourcing fits these guidelines. As the university seeks to meet these goals, they must work harder to not only increase independent sourcing of local produce, but for informing the student population about sustainable eating habits. Currently, educational programming is limited. The university health service provides small paper pamphlets, with a paltry selection of healthy recipes. Several student organizations have begun to


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<sup>1</sup> Kasper, Nicole. 2015. "A Study of the Dynamic Intersection of the Individual and the Food Environment in Three Populations." (Doctoral Dissertation) University of Michigan School of Public Health, Ann Arbor, MI

<sup>2</sup> "Planet Blue". *University of Michigan*, Feb. 17, 2017.  
<http://sustainability.umich.edu/about/goals>

address this problem, however, with great signs of success. Student Food Co. is a student-run program that sells locally sourced produce on campus several times a week. This organization recently began hosting cooking classes off campus featuring locally sourced produce. So far, this has proven to be a very effective method of helping educate students.



 **PREPARE**  
for the **WEEK**

**Create a Green Salad**

You will need:

- 4 Bowls with lids (2-C size)
- White paper towel (4 sheets)
- Romaine lettuce (1 ½ C)
- Grape tomatoes (4-5 per bowl)
- 2 Cucumbers: ½ per bowl, sliced
- 2 Green peppers: ½ per bowl, chopped
- 1-2 tsp olive or canola oil (add later)

- Combine vegetables in bowls
- Place paper towel inside each bowl (to absorb moisture)
- Seal bowls, store in refrigerator
- Salads should last about 5 days

An excerpt from the University of Michigan student cooking guide. Not only do the recipes not mention the benefits of sourcing local produce, but the recipes are bland and tasteless. *Source: University of Michigan Health Service*

This problem is not limited to college campuses by any means. Areas that experience the most extreme issues of food scarcity are oppressed

groups of low socio-economic status, particularly in post-industrial cities where racial divides limit solidarity and mobilization.<sup>3</sup> In recent years, a resurgence of urban agriculture initiatives has helped improve food access in these communities. In one example, a team of graduate students from the Maryland Institute College of Art in partnership with Baltimore City Farm Alliance sought to address this issues of food scarcity that was afflicting their community. This team created Real Food Farm, a mobile farmers market created from a converted delivery truck. Throughout the market season from May through December, the project hosts neighborhood markets and makes home deliveries of fresh, local, seasonal fruits and vegetables. The program has even integrated an EBT payment option as well. What make this project so successful is not only the hyper-accessibility of mobile produce, but a high level of community engagement as well. According to their mission statement, "At Real Food Farm, we strive to improve food access in Northeast Baltimore by focusing on three main concepts: pricing, proximity, and familiarity."<sup>4</sup>The first two points are easy to combat, and can be coordinated with a small team to keep produce affordable and continuously identify strategic market locations. Familiarity,

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<sup>3</sup> White, Monica M. 2011. "D-Town Farm: African American Resistance to Food Insecurity and the Transformation of Detroit." *Environmental Practice*. Vol. 13 (4).

<sup>4</sup> "Real Food Farm". *Baltimore City Civic Works*, Mar. 29, 2017. <http://realfoodfarm.civicworks.com/>

however, is another challenge. Real Food Farm has begun integrating educational programming to increase familiarity with healthy foods and where they come from. This is accomplished through integrated instruction about nutrition, agriculture, and food systems.



Images from the Real Food Farm. *Source: Baltimore City Farm Alliance*

Even in areas with ample access to fresh produce, there still remains a large disconnect between consumers and the farms where their food is actually coming from. This project in particular focuses on changing the public's perception of misshapen, or "ugly" produce.



A mobile food cart used to sell misshapen produce and raise awareness about sustainable eating practices outside of a grocery chain. *Source: The Culinary Misfits*

Culinary Misfits is the brainchild of Lea Brumsack and Tanja Krakowski, two women concerned about the food industry's unnecessary wastefulness. The duo had their origins selling produce from the back of a bicycle outside of supermarkets, but have since scaled to a brick and mortar café where they continue to develop their mission of sustainability. "Our project was

born out of a sense of activism,” explains Krakowski. “As designers, we naturally had an eye for beauty in imperfection, and that’s how we stumbled across this dilemma: Accepted beauty standards even influence supermarkets.”<sup>5</sup>

Most grocery stores have visual standards about what type of produce they are allowed to sell, and if any vegetable falls outside of this realm it is discarded, even if it is still edible. Not only does this generate an enormous amount of waste, it also cultivates a deeper, underlying issue. A large portion of the population in western countries has become so accustomed to industrial agriculture that anything falling outside these norms is seen as inedible. This leads to a greater divergence between consumers and local, organic food, which more often resembles these odd, misshapen vegetables.

Other designers have decided that the best way to increase awareness about local food systems is by the act of eating itself. The Center for Genomic Gastronomy is an artist-led think tank that examines the biotechnologies and biodiversity of human food systems. Many of these projects are centered on eating events, where the public can learn about sustainable eating practices. LOCI Food Lab is one particular project exploring the future of sustainable food.

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<sup>5</sup> “Culinary Misfits”. *Culinary Misfits*, March 17, 2017. <http://www.culinarymisfits.de/en/>





The Loci Foodlab. Visitors are asked to identify what they identify as the ideal food system, and are then presented with a custom made snack based on their answers. *Source: The Center for Genomic Gastronomy*

By actively engaging in this event, the public can learn more about the importance of seasonal produce within a healthy food economy.

dramatically this varies throughout the country. In a foreseeable future with diminishing resources, it is more important than ever to protect these regions of biodiversity before they are lost forever.

When addressing larger, more complex issues of food resource allocation in the future beyond industrial agriculture, many designers turn to the kitchen both as a solution and source of inspiration. Designers have begun exploring 'living kitchens' in an attempt to reduce food miles while creating a more holistic connection to growing vegetables and rearing animals.

While many of these projects are speculative in nature, they still create a medium for a dialogue on food sustainability and ethics. Design consultancy agency PostlerFerguson presented "The Future on Your Plate" to examine the compromises that will have to be faced in the wake of industrial agriculture. According to Ferguson, the head of the project, "Our relationship with food shapes both our personal lives and our global environment through how we consume it, cook it, grow it and distribute it [...], and ultimately create a more direct connection between food consumers and food producers.

## **Methodology**

Because my project has a strong focus on community engagement, it was important for me to learn more about the demographic I would be designing for, even before I began my initial drawings and ideations. In order to accomplish this initial research, I conducted both interviews and observations to get a better understanding of the attitudes and behavioral patterns associated with students trying to access local produce. Within the last few years, numerous organizations on campus have sprung up to address issues of food insecurity. One of the largest organizations working in this realm is the Student Food Co, a non-profit, student-run produce stand that sells fresh, affordable and consciously sourced produce on campus. In addition to their produce sales, this organization recently began organizing cooking classes where students could come learn preparation techniques from working chefs and how to best utilize seasonal, local produce. It was at this point I realized that If I really wanted to introduce communities to the local food system, having a mobile learning kitchen could be very beneficial in addition to a mixed use retail space.

Now that I had a better understanding of how to reach my target audience, I began to create many different ideations. These were mostly small thumbnail sketches, and were simply used to test out many different

form iterations. The first initial designs were quite simple, essentially a large, boxy countertop on wheels, but were very helpful for getting an understanding of scale. While I was still unsure about what the final project would look like, I was certain about different elements from the beginning. I knew that the produce stand had to be easily portable, so that farmers and students could move it with ease. In addition, from my observations at the farmers market, I knew that it was important to highlight the natural beauty of the produce. Finally, I surmised I would need a large storage for transporting the produce from various locations.

Like many design projects, before I started fabricating a full-scale prototype, I made more quick iterations, this time translating my sketches into quick, scale mockups. Even though these models were only a few inches tall, I was already starting to understand how people might move about and interact with it. For example, following my first full scale iteration, I realized I would need an easier access to the main storage area than I had initially anticipated. I also decided that if I wanted full mobility, I would have to create a removable and collapsible canopy.



A scale model mock-up made from laser cut birch. At the time this model was created, it was approaching the final design to be used for full scale fabrication.  
*Source: Teo Willard*

In order to incite behavioral change and encourage people to reexamine their relationship with the food system, I would need to create a visual transition between the produce normally seen in a grocery store, and that which would be displayed on the cart. This meant that I would need to determine the proper techniques for storage and display. For these questions I sought out advice from industry leaders, in this case the Manager of Argus Farm Stop, a local distribution center for farms surrounding Ann Arbor. It was here that I learned that leafy greens, requiring constant misting to keep from wilting under the hot sun, would

require drainage holds in the shelves and an overhead shade structure. Root vegetables, which require less maintenance, could be placed in baskets for easy access. As I learned more about how to handle these vegetables, I was simultaneously becoming more confident with the design, and began working on a full-scale prototype using cardboard and plastic tubing.



A scale mockup created using cardboard and PVC tubing. By using quick construction methods, I was able to quickly change features, such as counter height, in order to determine the optimal final form. *Source: Teo Willard*

This prototype had several benefits. First, I could create many quick iterations without the financial restraints or limitations of final materials, such as wood and steel. More importantly, however, I had the opportunity to test and validate my concept, and determine if a cart really was the most effective way to reach my audience. While working in scale model is

important for the initial ideation phase, it is impossible to get a full understanding of space, orientation, and placement. This process was very informative, and quickly helped me to see the flaws and benefits of my current design.



An early iteration of the digital cart design. *Source: Teo Willard*

I quickly realized that while large bicycle wheels were very beneficial for mobility, placing them in the middle of the frame made the cart very

difficult to balance, and had a tendency of tipping over. I also discovered that while the height of the cart seemed reasonable in a digital drawing, in real life it was much too high. This would make it difficult for people to utilize the full counter space, and so I began to make revisions. On the other hand, there were elements that I deemed to be very effective. The overall size and shape of the cart was very reminiscent to ice cream carts from my childhood, scattered around public parks on sunny days. As my peers began making this connection as well, I realized this form factor could be very beneficial for attracting students, and ultimately link an exciting, nostalgic feeling to my mission statement.

Now that I had a better understanding of the overall product form, I began testing the concept of a learning kitchen as a method of helping students re-examine their relationship with the local food system. On a weekday afternoon, I brought the cart to a public setting, and used a pop-up kitchen event to validate my concept. By preparing a simple tasting menu highlighting local vegetables, my aim was to have students leaving with new inspiration to eat healthy and learn more about their local food system.





This image details the display setup that was used to validate the concept, while informing the final design of the cart. *Source: Teo Willard*

While the concept of a learning kitchen became an integral part of my final iteration, I made many critical mistakes during this first testing experiment. First, because of the excessive height of the prototype countertop, I was unable to do any preparation on the cart itself, and was forced to use another table. This meant I was not able to attract as many students as I was hoping. In addition, while I was able to captivate my audience through the food preparation, I did not provide enough background information about the specific farms that the food they were eating came from. I saw this as a learning opportunity nonetheless, and used this information for my final iteration.

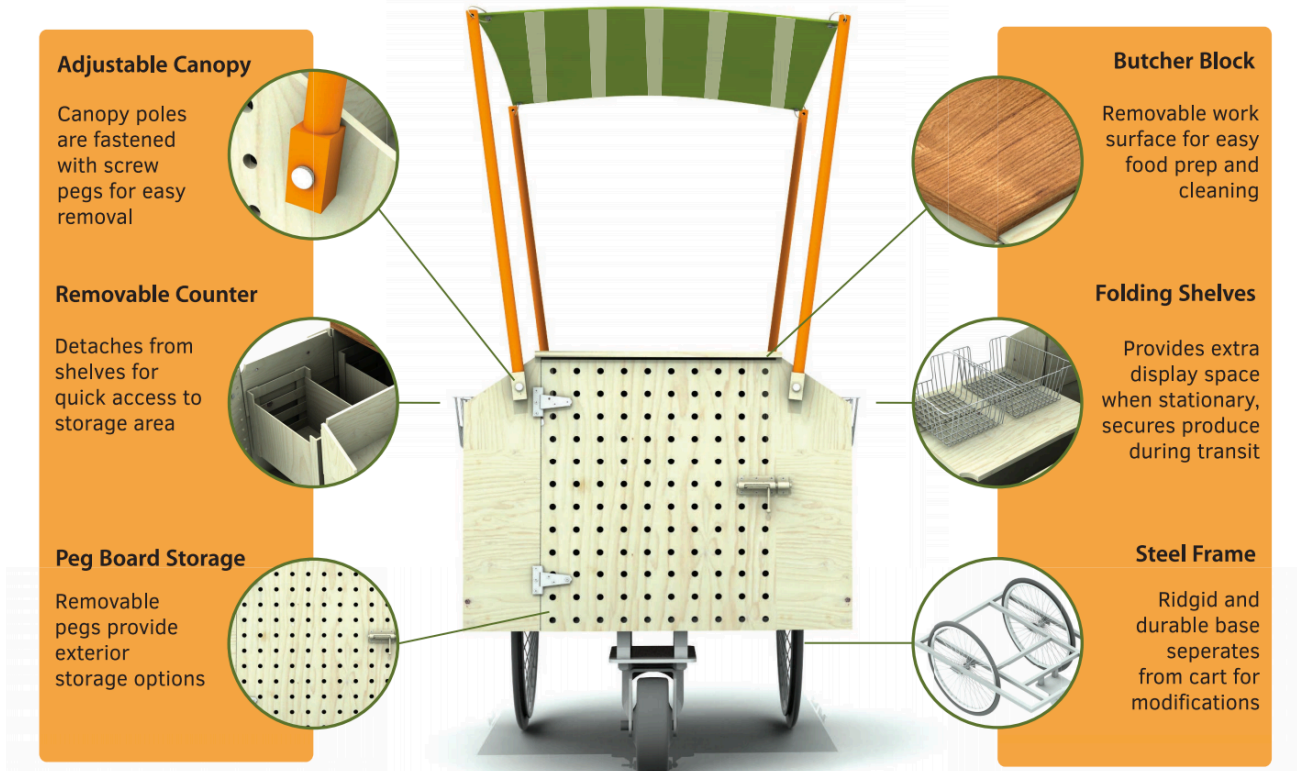
## **Creative Work**

The final food cart is roughly 2' x 4' x 2', with a removable fabric canopy extending the total height to around 7'. The cart features a steel rectangular frame, providing the support and connection for two 26" bicycle wheels in the back, and one 12" caster wheel in front. Bolted in to the sides of the frame are Baltic birch panels. At the front of the cart, there is a small hatch that can be opened to access the internal storage area when stationary, and latched during transit. This hatch door is a dual function pegboard as well, providing external storage. On the right and left side of the cart are shelves, two of which are permanently fastened with a clear acrylic window, providing around a cubic foot of storage each. The other two shelves fold down, to provide storage for baskets. These baskets sit halfway inside the cart on a small ledge for extra storage space. The top of the cart features two removable work surfaces. One is birch, for general preparation, and the other is a large oak cutting board. The canopy is fastened to the cart with four poles, which can be removed and stowed when necessary.

Perhaps the most important design factors I considered when making this cart was portability. The types of wheels, axel placement, and general

size of the work surface and storage were all tested with ease of transportation in mind. When the cart is in transit, all the shelving units, baskets, displays and canopy can be folded and stowed within the interior storage space. Setting up the cart upon arrival to the destination is as simple as unpacking the boxes, placing signage, and setting up the canopy.

Not only was it crucial that the cart easily transport produce from a variety of locations, from the farmer's land to a busy campus, but that people would feel comfortable and intrigued to approach it as well. This is a critical aspect to consider when designing for behavioral change. In addition, each element of the cart is designed with a high level of interaction in mind. Knowing that the countertop would be used for both selling produce and food preparation, I wanted to make sure that the surface was comfortable to access from every direction. This meant that I had to design a unique shelving system so it would not be too obtrusive, while still providing ample display space for the produce. Even the cutting board has a slight bevel to round off the sharp edge, in order to maintain a welcoming feeling.



Itemized features of the final design. *Source: Teo Willard*

Materiality was another important design factor as well. I felt that it was vital for the final form durable yet alluring. By using sheets of Baltic birch plywood, I highlighted the natural grain with a simple marine grade finish to create a holistic, natural feeling, usually seen in farmers markets through a hodgepodge of table settings, produce boxes, and displays. These materialistic decisions also had a more important underlying role. I felt that by using natural materials, I could create a nostalgic connection to food, in which the end user could relate to with experiences with their grandparents and other relatives. This feeling would be able to translate regardless of the

demographic that would be interacting with the cart, ultimately leaving a lasting impression towards local produce



The finished cart during the final testing experiment. *Source: Teo Willard*

## **Conclusion**

Once I had completed the fabrication of the cart, I knew it would be important for me to test the final product, and activate it in a public space, in order to receive feedback for future iterations, as well as inspiration for expanding this project in different directions. On the Friday of the opening undergraduate exhibition, I piloted my project under the new title Farmer's Hand Mobile Market. Over the course of an evening, I served over sixty

participants dishes created from locally sourced produce. All of the ingredients were sourced from four farms no more than thirty miles from Ann Arbor. I had the opportunity of creating a dialogue with many of the participants, showing them cooking techniques for seasonal produce, while expressing the benefits of supporting local farmers. In addition, I was even able to provide the users with a brief bio about the mission statements for each of the farms they were sampling, further reinforcing my goal of re-humanizing the connection between farmers and consumers.

As I served people from a wide range of backgrounds, I noticed how faces seemed to light up as they were handed a bowl of fresh salad. The cart encouraged even more dialogue than I had anticipated, as people shared stories with me about their connections to the farmers I was showcasing, and how the mixed greens reminded them of childhood family vacations. It was at this moment that the power of food solidified in my mind, as a tool for inciting change and developing a stronger, more sustainable communities.

Through this experiment, I was able to gain a great understanding of how this project could exist and be beneficial in the real world. Based on some of the feedback I received, I could imagine this project existing as a learning kitchen in many different settings, including high-school

programs, particularly in urban areas with limited access to fresh produce. This project could also have strong entrepreneurial applications as well. Urban farmers and other local food producers could easily start a small business with the carts ample storage and display space before scaling to a larger setting.

As I begin thinking about next steps for this particular iteration, I decided that one community in particular that could benefit from this project is the Brightmoor neighborhood in Detroit. With a high concentration of large scale gardens and few accessible grocery stores, this makes an ideal setting for a wide variety of uses, particularly from the younger members of the community, who would most benefit from learning about healthy and sustainable cooking methods. I hope that in the future I can work with more communities on campus and beyond. If I can elicit smiles and have people leave with a spark of imagination about the local food system, I know I will have accomplished something meaningful.

## Bibliography

"Center For Genomic Gastronomy". *Center for Genomic Gastronomy*, Jun. 17, 2016.

9 Feb. 2017. <http://genomicgastronomy.com/>

"Culinary Misfits". *Culinary Misfits*, Mar. 17, 2017. <http://culinarymisfits.de/en/>

Klanten, Robert. *CrEATe: Eating, Design, and Future Food*. (Germany: Gestalten, 2015), 155.

Kasper, Nicole. 2015. "A Study of the Dynamic Intersection of the Individual and the Food Environment in Three Populations." (Doctoral Dissertation) University of Michigan School of Public Health, Ann Arbor, MI

White, Monica M. 2011. "D-Town Farm: African American Resistance to Food Insecurity and the Transformation of Detroit." *Environmental Practice*. Vol. 13 (4).

"Planet Blue". *University of Michigan*, n.d. Feb. 17, 2017

<http://sustainability.umich.edu/about/goals>

"Real Food Farm". *Baltimore City Civic Works*, Mar. 29, 2017.

<http://realfoodfarm.civicworks.com/>