



Research Article

Glean Hudson Valley Aligning Food Abundance and Scarcity for a Just and Equitable Food System

Evelina Knodel*

MS in Architecture and Urban Design from Columbia University, Urban Designer, MASS Design Group/ Hudson Valley Design Lab, USA

***Corresponding author:** Evelina Knodel, MS in Architecture and Urban Design from Columbia University, Urban Designer, MASS Design Group/ Hudson Valley Design Lab, USA. Tel: +17633554642; Email: eknodel@mass-group.org

Citation: Knodel E (2018) Glean Hudson Valley Aligning Food Abundance and Scarcity for a Just and Equitable Food System. GJ J Foo Sci Nutri: GJFSN:102.

Received Date: 15 June, 2018; **Accepted Date:** 20 June, 2018; **Published Date:** 29 June, 2018

Abstract

A thorough analysis of the history of "gleaning" exposes underlying discussions about moral obligations to the poor and hungry, the role of government in land management and agricultural production, the drastic separation between food production and consumption, leading causes behind food insecurity, and market pressures that drive overproduction and cosmetic standards that lead to food waste. These issues are well illustrated the Hudson Valley where an incredible bounty of fresh, local produce and dairy is juxtaposed with rising impoverished, unemployed, and food insecure populations. A growing network of gleaning programs has already taken shape in Orange, Ulster, and Columbia Counties gathering leftover food from farms and distributing it to various emergency food aid agencies. It used to be that poor or unemployed would go directly into the fields to glean. Nowadays, disenfranchised hardly have access to grocery stores, let alone agricultural fields. Government policies provide Food Stamps and WIC (Women Infants and Children) benefits, but these provisions, like the entire food system, are disjointed. This project analyzes and visualizes data about the food recovery and distribution process in the Hudson Valley in order to expose inefficiencies and opportunities for improving and expanding the system. My research is ultimately concentrated in the case study of Poughkeepsie, NY, but it is important to acknowledge the many scales of the systems at play, which is why much of this research spans the entire Hudson Valley region. By visualizing the disconnections between food production and food consumption and the many steps in between, the injustices of food access take on new meaning; they demand changes in the current food system, but they also acknowledge that reassessing, reconfiguring, and reconnecting existing regional assets-from farmers to food outlets to institutions to local community members-could catalyze those changes.

Keywords: Distribution; Food hub; Food insecurity; Food processing; Food recovery; Food Stamps; Gleaning; Hudson Valley; Injustice; Welfare; WIC (Women Infants and Children).

Introduction

"Doesn't it make sense to connect the dots; to collect the food that is wasted at the farm to feed those who don't have access to fresh fruits and vegetables?" -Stiles Najak, Orange County Cooperative Extension

Though the term is not commonly used today, "gleaning" describes an ancient practice that for a long time ensured the allocation of food to the poor. It dates back to the Book of Ruth from the Old Testament in 1100 BCE, in which it is established that farmers must leave excess food on the farm for the peasants to collect after the harvest. The European State eventually adopted the views of the Church that it was

the God-given right of the poor to glean. But gleaning back then was very different from how it is now. Not only was it mandated, but it was performed primarily by women and children from peasant families, sometimes even the families of the farm workers themselves. Since then, a great divide has developed between the poor and the fields. Standing in line at soup kitchens and food pantries has replaced the opportunity to recover food from the fields. That work is now done by boys and girls clubs, rotary clubs, community organizations, or community volunteers as an "act of charity". Volunteers collect the food and drop it off at Emergency Food Programs (EFPs) including food banks, soup kitchens, and food pantries. Faith-based organizations still play a predominant role in the distribution food to that

in need, stepping in out of a moral obligation to ensure that no one goes hungry when social services are insufficient or ineffective.

With a reported 15% of residents who are food insecure and 11% who are food insecure with hunger, Poughkeepsie, NY was selected as a case study because of its high concentration of Emergency Food Programs in a county that lacks a designated gleaning network. A city-wide assessment of social, economic, and physical access to healthy food reveals a clear connection between food insecurity and poverty and the need for more equitably distributed food outlets providing fresh food options. In Poughkeepsie, plans are being developed for a potential food hub—a facility that could not only be used for storage and processing of gleaned food, but could also train and provide jobs for people in the process. There is an opportunity to employ and train poor and unemployed in a combined food recovery, processing, preparation, and distribution program that turns gleaned food into year-round accessible, high-quality food and empowers people to regain control over what they are putting in their bodies and where it is coming from.

It is important to acknowledge that although Emergency Food Programs play a vital role in getting food to people in need, they were never designed to be long-term solutions to systemic problems that lead to poverty. They are still just a band-aid for cuts that run much deeper than what we can see on a day-to-day basis. Gleaning offers an exciting opportunity to form a network of regional assets that make rescuing leftover food and getting it to people in need more feasible. By emphasizing the existing need and potential in the Hudson Valley, this project seeks to catalyze efforts towards a more just and equitable food system not only in New York, but also in regions facing similar challenges and conditions.

Materials and Methods

Research into the history and evolution of gleaning was vital to this project. Due to the prominence of gleaning as a subject for artists, an analysis of gleaning-related artwork was used to track gleaning through the centuries in an attempt to understand its social, political, economic, and religious role in society all over the world.

Data from the FAO (Food and Agriculture Organization) on global food waste formed the basis for an analysis and comparison of food waste by food type and point in the food cycle.

The Orange County gleaning network, run by Stiles Najak, was the primary source of data for understanding current gleaning efforts in the Hudson Valley. They were one of the first to get off the ground around ten years ago, and they operate out of a refrigerated truck that they can drive from farm to farm picking up produce that would otherwise go to waste. I was able to use this data to determine relative types and amounts of produce that can be gleaned over the course of the year, depicting the relative availability of food

for recovery, where it is coming from, where it goes, and how it might be used. I also did a seasonal analysis of the data, comparing it to a typical growing season in order to understand the relative yearly rhythm required for functional gleaning networks, its relationship to local production, and gaps in production and recovery potential.

At the more local level, there was a community food assessment done in 2015 in conjunction with the Center for Research, Regional Education, and Outreach (CRREO) that conducted surveys to determine barriers to access to fresh, healthy food in Poughkeepsie. They acquired responses about barriers in access to fresh food, mobility and access to public transportation, reliance on food assistance programs, and rates of unemployment and poverty. This data was useful in understanding the conditions present at the city level and barriers faced by residents, but personal experience and narratives from local residents was one of the most important data collection methods for this project. Having lived in Poughkeepsie for a year and volunteered at soup kitchens and food related events, the importance of building on the rich and diverse cultures present here has become evident. This project is no longer just about getting access to fresh food, but about getting access to food that is culturally relevant and familiar and finding opportunities to share that with others. I have also had a number of conversations with organizations and agencies involved in the Emergency Food Program network and other gleaning networks in the Hudson Valley. Their recommendations and suggestions for spatial and functional requirements of potential food hubs have been instrumental in developing the framework for a food hub in Poughkeepsie.

Results

Gleaned food goes to what are termed, Emergency Food Assistance Programs or (EFPs). These include Food Banks, Food Pantries, and Soup Kitchens. Food banks are essentially large warehouses where food is aggregated, stored, and redistributed to the other two types of EFPs. The Food pantry is like a store room, mostly filled with non-perishable food items that can be distributed to families in need usually just once/month. Soup kitchens operate on a more regular schedule, preparing and serving meals to anyone in need. Very many food pantries and soup kitchens, especially in the Hudson Valley are based out of churches, which usually already have kitchen and storage space, and they can be used for very reasonable prices or even for free.

Here's a map of the active gleaning networks in the Hudson Valley. The arrows depict the path from farm to EFP. Long Table Harvest operates for Columbia County. They are very new and are struggling with issues of limited staff and limited storage capacity. Ulster Corps operates for Ulster County. They have a very extensive network and are working towards setting up food hubs throughout the county that can be used for storage and processing of food. The Glean Mobile functions in Orange County. They have been running off of grant funding from Cornell Cooperative

Extension and are the ones who were willing to share their data with me for this project.

Looking at this distribution, there are two points I'd like to emphasize.

- These networks largely operate within the boundaries of their county, mostly to prevent overlap from different gleaning operations and for geographic convenience. This way, the volunteer base won't have to drive more than 45 minutes to perform a pick-up or drop-off.
- Despite a high concentration of EFPs, Dutchess County is almost entirely lacking a gleaning network. This happens to be where Poughkeepsie is located.

History of Gleaning

Although the process and meaning of gleaning has changed over time, it is an ancient practice that has a long and rich history revealing a great deal about western conceptualizations of food provision, waste management, and social inequities. The Book of Ruth in the Old Testament (1100 BCE) is the first documented account of the concept of gleaning. In the story, Ruth is a young widowed peasant who goes into the fields of Boaz to collect barley that has been left behind by the reapers or harvesters (Image 1).

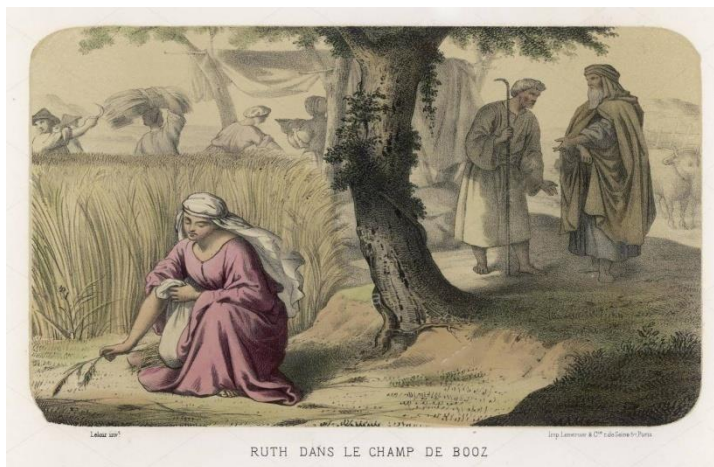


Image 1: Ruth in the Fields of Boaz.

The tale of Ruth and Boaz is one of the most enduring representations of gleaning throughout history, establishing the gleaner as frail and helpless, reliant upon the decency of the farmer to leave behind his excess yield. Through religious scripture, gleaning is described as a mandate to the farmer and a right of the poor:

When you reap the harvest of your land, do not reap to the very edges of your field or gather the gleanings of your harvest. Do not go over your vineyard a second time or pick up the grapes that are fallen. Leave them for the poor and alien. (Leviticus 9:9-10)

The Old Testament emphasizes the charitable aspects of allowing the poor to glean in fields, the leaving behind of missed harvests becoming an intentional oversight. It is more likely that the benefits to gleaning were mutual, however. Leftovers may have been left in the fields and picked up by the needy, but not because the Bible told them to do so. Rather, it was a matter of efficiency and practicality. During Roman times, gleaning was more about minimizing food waste on farms than about provision for the poor. It was an integrated part of the harvest process, usually conducted by the landowner and his workers to collect what was left in the fields before letting livestock out to pasture. Gleaning may even have been a compensated

position valued by landowners as a way of capturing the full potential of their fields. Liana Vardi explains:

The harvest involved five main stages. The first was the cutting of the stalks, the second the bundling into sheaves, the third the piling of the sheaves into mounds, the fourth the carting of the sheaves to the barn, where they would either be stored or threshed. Lastly, the remains would be gathered. This could be done by the owner and his laborers, right after the bundling, as a specialized crew of rakers followed right behind the binders. It could also be done after the harvest was stored. Gleaning by hand involved careful sifting and was therefore time consuming; it made more sense, where labor was scarce, to bring the main part of the harvest before worrying about the leftovers. The fallen grain could also be left for the cattle grazing in the fields; or...it might be abandoned altogether and collected by those who needed it [1].

The distinction between "reapers" who would cut and bind the grain and "gleaners" who would pick up the leftovers was primarily determined not by poverty, but by physical fitness. The stronger, more able-bodied (typically the men) would take on the labor-intensive task of reaping while the weaker women, children, or infirm could do the gleaning. Whether for religious or practical reasons, however, a clear

divide between those who harvested and those who gleaned has always been distinct.

In the late Middle Ages, gleaning was conducted by farm workers themselves, but the task was only assigned to “workers not needed elsewhere [2].” Picking up leftovers was always the least valued of tasks, requiring the least

amount of skill or physical fitness and resulting in the least amount of added value to the farming operation. Though not a worthless amount of food, leftovers were not necessary to meet yield quotas and served a better purpose as feed for livestock when they went out to pasture. The amount of time and labor required to recover such food was not worth the potential benefit (Image 2).



Image 2: Farming in the middle Ages.

Farmers preferred to simply leave excess food in the fields for animal grazing because it was more efficient than allowing humans to glean. However, the government began to intervene, requiring farmers to embed gleaning periods into their harvest cycles. In 1260, Louis IX, King of France, forbade animals to enter the fields until three days after the end of the harvest, most likely in order to allow the poor to glean. In 1276, Philippe III upheld the order. Again in 1507, the coutume of Peronne in France granted gleaners three days in the fields [3]. Although many farmers argued that not enough food would be left for the livestock to eat after gleaning, the state typically favored regulations that supported additional time for human gleaning.

By the end of the Middle Ages, gleaning was regulated by law. Usually done by women who were not farm laborers, gleaners were given one to seven days after the harvest to glean before fields were opened to pasture. As separation between farming and gleaning grew, so did conflicts between them. Although the amount of time pastures were left open for gleaning was regulated by the government, gleaning could still be practiced by anyone in the general public, leading to what were considered abuses of charity: “In the worst cases, the needy...converged on villages and stole the crops under the guise of gleaning [4].” The “stealing of crops” by those who did not justly need the food was a popular topic. Who was to decide how to define “needy”? Did everyone have a right to glean? Farmers began to feel as though their generosity was being abused and that food that would have been profitable was getting into the wrong hands. Farm laborers who had historically been

allowed to glean the fields themselves felt robbed of what should rightfully have been theirs. The very poor and unemployed who were the target audience also did not get to collect as much food as they might otherwise. It was in response to such discontent that government regulations and restrictions in the late middle Ages increased, ordering field patrols and gleaning prohibitions to ensure that the food was getting to those who needed it most.

Ostensibly, it was purely a charitable act morally ordained by religious scripture to serve the weakest and most helpless of the population. The motives behind State regulation of gleaning can be debated. Some say, “Governments became increasingly involved in the fight against poverty and hunger because they were concerned about the threat of social instability presented by the growing numbers of poor people [5].” It is notably not mentioned that this also reduced income for small farmers who had to pay the most taxes, thereby increasing income for the State.

18th Century

In the 18th century, religious views on gleaning and provision for the poor infiltrated State actions in Europe. An eighteenth-century compendium read that gleaning “means to pick up the stalks that remain on the field after the farmer has removed his crop. This portion of the earth’s bounty belongs [my italics] to the poor and is allotted to them in a special manner” (Leviticus, Chapter 19:9,6). The State adopted the church’s long-held stance that gleaning is

the right of the poor and that it is the moral duty of the farmer to allow them to do so. Their rhetoric also strongly emphasized that gleaning “yielded no profit” [6] and could be of use only to the most vulnerable of the population. On the contrary, in the 1790s reports suggest there was a great deal of food to be collected: “The poor make a great deal by gleaning.... Several families will gather as much wheat as will serve them for bread the whole year; and as many beans as will keep a pig [7].” According to Peter King, it was also a significant economic buffer for low-income families: “Gleaning was not a marginal activity in most grain-growing parishes. It contributed up to one-eighth of annual household earnings and often even more in households headed by widows. It was a vital safety net for the winter months and was a particularly useful source of food in years of dearth [8].”

The gleaning of crops by farmers or farm workers was prohibited. “Farmers who gathered the remains themselves were robbing the poor. The state had to watch out for such predators. Eighteenth-century judges were truly appalled by what they called the rapaciousness of farmers who continued to glean rather than leave the deserving poor their share [9].” Conflicts between farmers and State regulations increased dramatically. While the State believed that post-harvest pickings should be reserved for only the poor and destitute, farmers preferred to incorporate gleaning into the harvest process, allowing their laborers or their families to glean as a part of their wages and to allow gleaners to follow the reapers directly instead of waiting until after the tithing. They saw this as their right more than they understood it to be the right of the State to interfere with the way they managed their land. However, they paid a price if they disobeyed, often accruing fines if they allowed gleaners to follow the reapers [10]. Most of the fines collected from farmers went to poor houses and churches, but farmers eventually lost their patience with the rate and vigor with which authorities were persecuting them, arguing that they had a right to manage their own land as they saw fit.

One of the unfortunate consequences of this situation was that hostility grew between farmers and gleaners as well. Farmers were tired of being mandated and fined by the state for not leaving enough of their crop for gleaning, allowing the wrong people to glean, or allowing them to glean too early. Subsequently, gleaners were being abused and chased off the land by farmers and their workers for trying to glean food. Farm laborers were equally disappointed that they or their families could no longer glean as a part of their wages. Although they were not considered to be “poor” by the State, farm wages were extremely low and made it difficult for them to be able to feed their own families. At Biaxall in Suffolk, for example, “farm laborers’ wages were still so low in the 1890s that that the loss of gleaned corn could mean actual hunger to many a farm-worker’s family [11].” Therefore, the perceptions publicized by the state emphasizing the moral obligations of the farmers to the poor not only overlooked an important segment of the population, but also allowed

them to control how and when gleaning occurred and even who could be defined as “poor.”

Definitions of the poor have varied greatly over the course of history. In 1643, women and children of farm workers were the primary gleaners while those “unwilling to work” were excluded. In this way it was not about the weakest in the population, but who deserved the privilege. “In the late 1630s the authorities in Dorset and Norfolk attempted to confine gleaning to the aged, weak, and infirm, or to those specifically listed as poor by the parish officers. On the other hand, in many places ‘the poor’ were being defined very widely to include almost every landless family [12].”

By the late 18th and 19th centuries in Europe, women and children may not have been the only gleaners, but they certainly featured prominently in its depictions. Gleaning would recall young, beautiful peasant women hunched over the fields with armfuls of leftover grain (Image 3) or small, innocent-looking children holding large bundles (Image 4). Their work would be arduous, the mood somber, evoking pity for their struggle and encouraging participation in provision for them. However, many women looked to gleaning not as a last resort to feed their families, but as a practical form of work and income. King states, “Gleaning was one of the few customary activities controlled almost exclusively by women...By the 1830s, gleaning was not infrequently listed as one of the main forms of work available to women in some parts of eastern England [13].” The romantic renditions of the hardships of the impoverished may have been grounded, but they may also have been a form of propaganda perpetuating the state’s paternalistic desires to maintain the status quo.



Image 3: Two Girls Gleaning by Pierre Renoir (1888).



Image 3: The Recall of the Gleaners by Jules Breton (1859)



Image 4: The Gleaners by Jean Francois Millet (1857).

Jean Francois Millet's *The Gleaners* has become one of the most famous representations of peasant life in French history. Vardi states, "The contrast between wealth and poverty, power and helplessness, male and female spheres is forcefully rendered [14]." Bleak colors and a dramatic sky evoke a melancholic mood while the women hunched over in the foreground separated from the farmer and the harvest in the back make them feel humble and isolated. Again, this very dramatic rendition of gleaning may be an overly romanticized representation of reality that protects the power of the state to control the harvest and collect more taxes. If the poor remained innocent and helpless, the state could garner public support for the mandate on farmers to leave food in the fields. Vardi argues, "Officials infused gleaning with symbolic significance and turned it into a metaphor for charity, a version of the moral commonwealth [15]." Peasant women and children who gleaned remained entirely dependent upon the farmers, reinforcing social inequities of the day and limiting their ability to move out of poverty or earn their own incomes. On the other hand, gleaning of this period represents and

incredible coordination among farmers, their workers, and the poor. Despite conflicts that threatened the delicate balance between the right of the farmer and their workers to manage the land, and the right of the poor to collect leftover yield, gleaning fostered direct connection to the land by lay people, which has largely disintegrated over time.

The 20th century in the western hemisphere represented a shift away from governmental regulation of food provision favor of public charity. In the face of social welfare cuts during the Reagan administration, the onus fell on the generosity of religious institutions, non-profits, and philanthropists to provide food to those in need. Cuts to welfare programs in the 60s, such as food stamps, correlate with the rise of Emergency Food Programs, which include food banks, soup kitchens, and food pantries. The term, gleaning, has fallen out of use because standing in line at soup kitchens and food pantries has replaced the opportunity to recover food from the fields. That work is now done by boys and girls clubs, rotary clubs, community organizations, or just community volunteers (especially those with cars). A volunteer from a gleaning network in Ohio explains:

Vehicles typically are donated by local charitable groups, often churches, but other times private voluntary organization like Red Cross... [The volunteers] either belong to a church, or they've been motivated in some way because of the issue, or they're a young person. We even have senior citizens. We had, I believe, some people from some county homes, some mentally retarded people. Everybody is invited to participate [16].

Volunteers collect the food and drop it off at Emergency Food Programs. Churches have become the predominant hosts of food pantries and soup kitchens, the primary outlet for getting food to that in need. This adds two levels of separation between those in need and the fields (Figure 1).



Figure 1: Emergency Food Programs

Sometimes, food goes to food banks instead of directly to EFPs. This means that another level of separation is added to the process. Food banks will aggregate, store and redistribute recovered food, but soup kitchens and food

pantries need to pay a membership fee to the food bank to receive that food at a reduced price, and they often must drive quite far to pick up the food themselves (Figure 2).

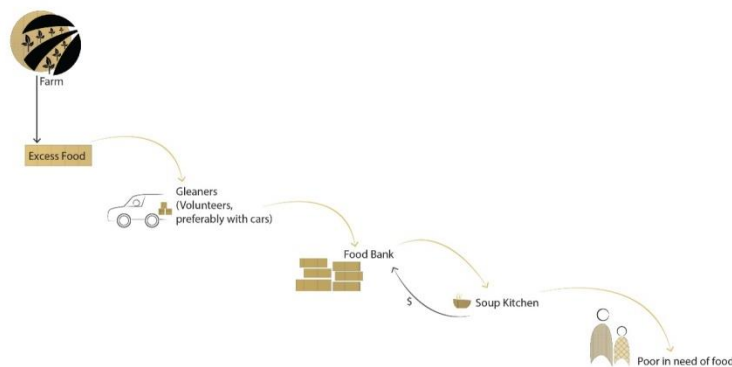


Figure 2: Food Banks.

To understand how this system plays out in the Hudson Valley, I conducted an analysis of types of available food, seasonal availability, and distribution networks before zooming into the case study of Poughkeepsie, NY where there is a very high concentration of Emergency Food Programs. The Hudson Valley is a region just north of New

York City that lines the Hudson River. Very fertile soils and access to water for irrigation make it a highly productive agricultural zone in multiple sectors. For the purposes of this research, I have included Dutchess, Greene, Columbia, Orange, and Ulster Counties in my scope of research.

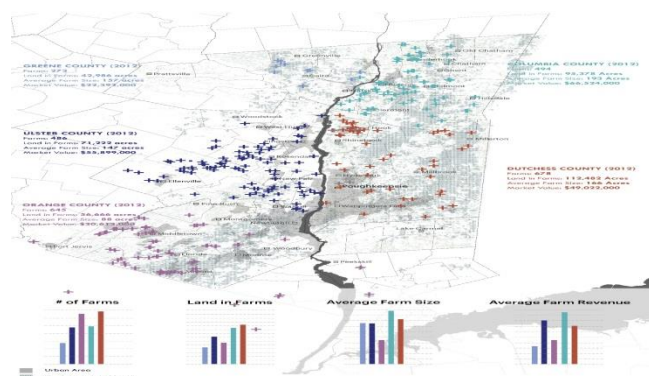


Figure 3: Farms in the Hudson Valley.

Figure 3 depicts the many farms located in five counties around the Hudson River, a very fertile area of land. If we can assume that it would be possible for every farm to participate in gleaning, this map represents the full potential of gleaning sources in the Hudson Valley. In the past ten years, the region has seen a great increase in

awareness and interest in gleaning. Gleaning Networks now exist in Columbia, Ulster, and Orange Counties. Figure 4 depicts the farms that currently participate in these gleaning programs. A comparison of total farms and those that participate in gleaning reveals that active networks are currently unable to meet their full potential.

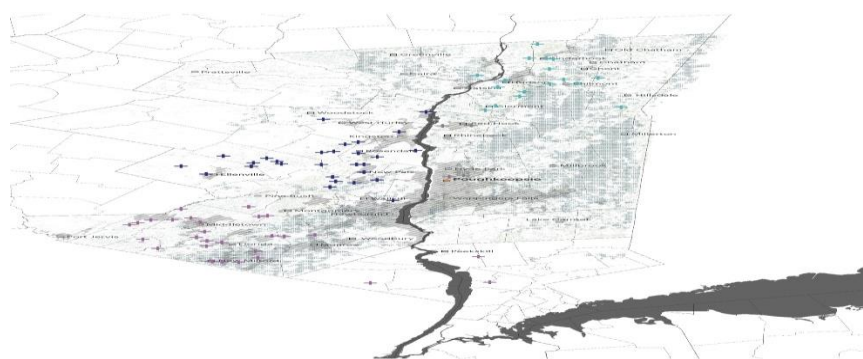


Figure 4: Farms that Participate in Gleaning.

Gleaning Challenges

Capacity

Since gleaning networks are run on volunteer labor, donations, and grants, time, adequate vehicles for transporting food, and people willing to coordinate between the volunteers, the farmers, and the EFPs are major limiting factors. Though funding is almost always a concern when it comes to charitable efforts, gleaning is not very expensive because it involves the recovery of food that would otherwise go to waste. Quotes a gleaning program coordinator: “When I say it’s cost-effective, I mean it hardly costs anything, except for a few dollars up front to pay for lunches and cans of pop and orange juice, and those kinds of things, for people working in the fields. So, there’s hardly

any expense at all connected with it at all [17].” Time and accessibility in terms of coordinating volunteers, getting them to the right places, and having enough vehicles to transport the food are the biggest concerns.

Liability

Whenever a group of strangers enter a farm, adequate training of the gleaners and oversight from the landowner is necessary to ensure everyone’s safety. For most farmers, it is a lot easier and more cost-effective to just compost the leftovers by tilling them under or leaving them for livestock to graze on, whether they are viable to eat or not. Every farmer wants to see their product utilized to its maximum capabilities. It is estimated that up to 18% of produce goes to waste before it even leaves the farm (**Figure 5**).

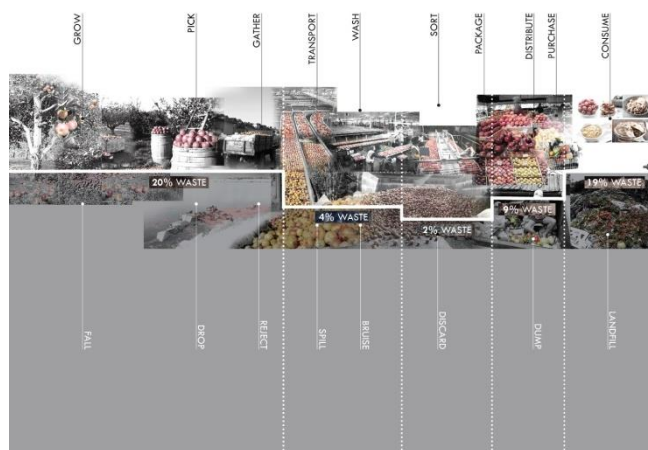


Figure 5: Food Waste in an Apple's Lifecycle

Farmers put a lot of time and valuable resources into their crops, and I have heard from many farmers I have spoken to that if they can donate the food, they will, but it needs to be easy for them. If it is costing them time and money to open their field for gleaning, they probably won’t participate.

Type of Food

Not all farms have an equal likelihood of participation in gleaning due to type of operation and food being produced. If we look at the areas where there are very few participating farms, we can see that there are very high concentrations of meat and dairy farms in those areas (**Figure 6**).

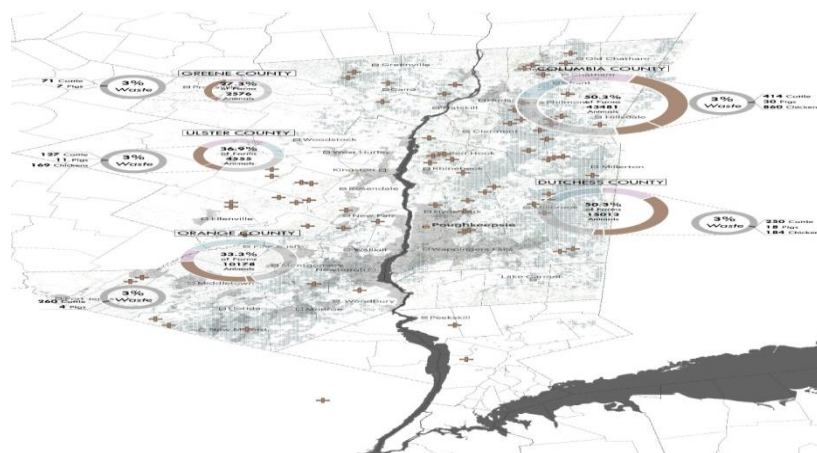


Figure 6: Meat and Dairy Farms in the Hudson Valley

In the two counties on the right side of the river, around half of the farms produce meat and dairy. This is because meat and dairy are not typically gleaned from farms. These products are typically sent to a separate processing and bottling/ butchering facility before they are packaged and sent for distribution. Therefore, most waste doesn't happen at the farm level. In fact, if we look at a lifecycle of beef as

depicted in (Figure 7), we can see that most waste occurs at the consumer level. Upwards of 20% of most fruit and produce gets wasted on the farm compared to only 4% of meat, suggesting that when it comes to gleaning, vegetable farms and orchards are the greatest opportunity to collect viable food.

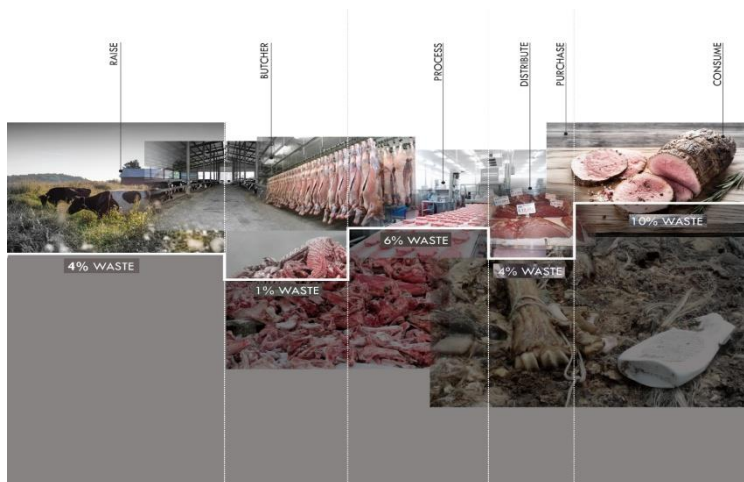


Figure 7: Waste over the Lifecycle of Beef

Space Constraints

To understand the need for storage, processing, and distribution of food for gleaning networks, I have analyzed data from a gleaning network based out of Orange County in the Hudson Valley. They were one of the first to get off

the ground around ten years ago, and they operate out of a refrigerated truck that they can drive from farm to farm picking up produce that would otherwise go to waste. Figure shows the amounts of food they could pick up over the course of 2015 from 17 different farms (**Figure 8**).

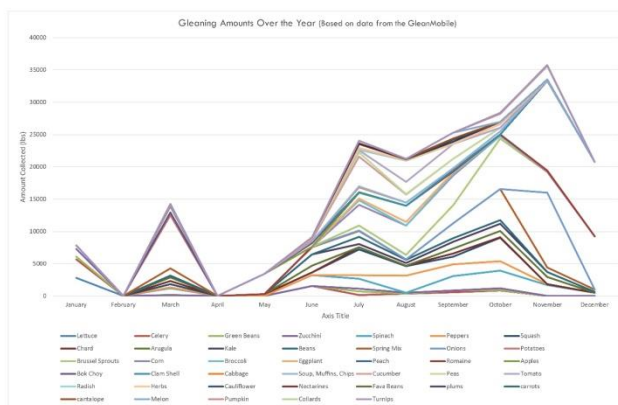


Figure 8: Orange County Gleaning Amounts by Product Type

Each line represents a different type of produce collected. The item that they collected the most of was apples at almost 30,000 lbs. This is no big surprise since the Hudson Valley is renowned for its apple production. Second, by weight, were potatoes at 23,000 lbs. Then onions, corn, spinach, and squash as well as a long list of others.

two because gleaning cannot take place until the farmers have had a chance to harvest their fields (**Figure 9**). However, the gleaning season by no means solves the problem of cold climates, which is that there is very little food to be had locally from the months of December through April. In fact, the nature of gleaning means that the food collected often needs to be either eaten right away or processed and stored so that it can be available during those months.

In aggregation, we can see how the gleaning season compares to the typical harvest season. The gleaning season typically follows the harvest season by a month or

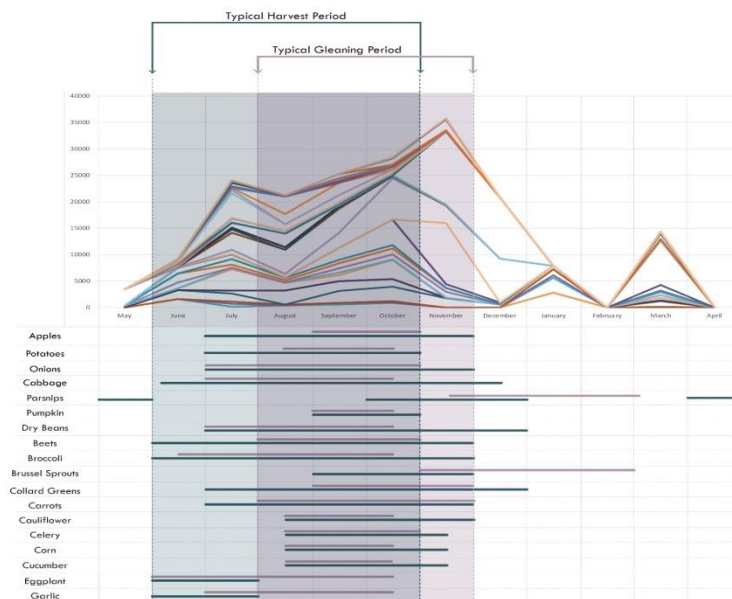


Figure 9: Gleaning and Harvest Periods

(Figure 10) takes the same graph and analyzes it in terms of yearly collection amounts. Peak gleaning season falls in October and November, after which follows a gap in collection from December through April. Though it may

seem counterintuitive, the orange sector of the graph is labeled as “surplus” because having more food than they know what to do with is actually a common problem for gleaning networks.

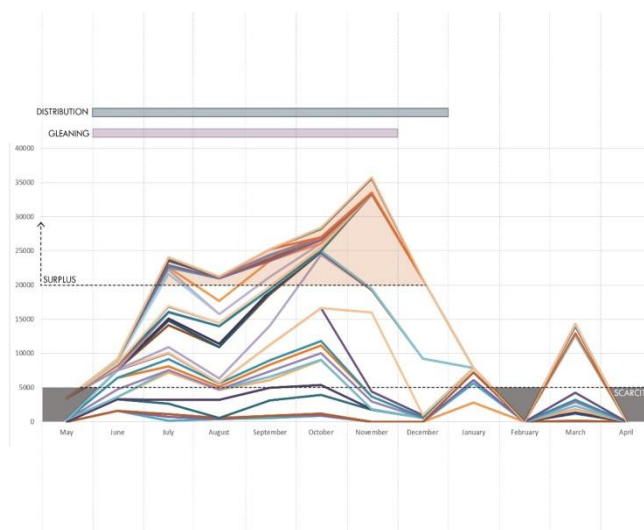


Figure 10: Collection Surplus

The drastic variability of viable food throughout the year emphasizes the need for storage and processing. Soup kitchens and food pantries can only accept so much food before they will run out of space to put it. Most of them operate on a day by day or week by week basis, only storing what food they need to get them through a short period of

time because otherwise it will go bad and get wasted anyways.

But what if that excess food during the peak months could be processed and stored somewhere until it is needed by the EFPs? What if that stored food could then be used all through the winter to fill that fresh food gap? (Figure 11).

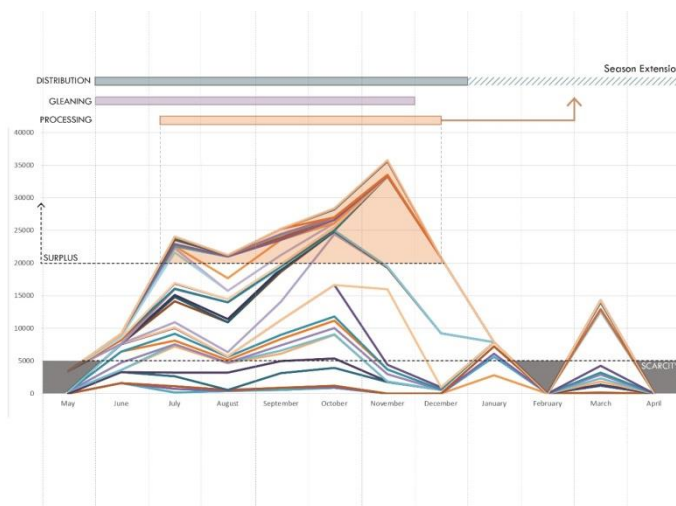


Figure 11: Filing the Food Gap.

A food hub is a place of aggregation, storage, and redistribution of food. As it has a physical presence, it is not only more visible, but it formulates a place where food can be collected, processed, stored, and distributed to local organizations. Therefore, it affords the potential to expand gleaning networks, increase awareness, extend food

availability across seasons, and involve community members currently disconnected from healthy, nutritious food. (Figures 12 and 13) compare gleaning systems before and after the presence of a food hub, depicting potential expansion in food collection and efficiency.

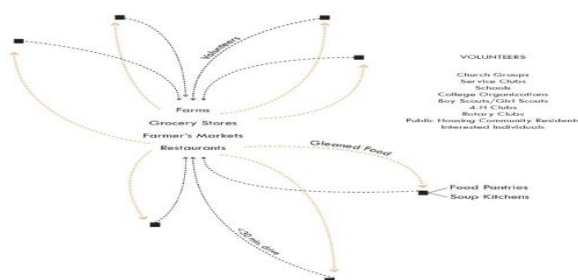


Figure 12: Gleaning Process.

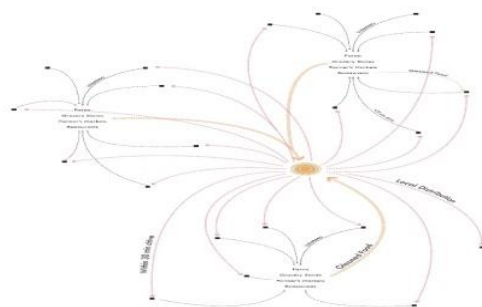


Figure 13: Gleaning Process with a Food Hub.

This expansion of gleaning networks is enabled by the provision of storage space, which allows more food to be

collected and more time to find outlets for the food. Food Hubs also allow us to take advantage of the incredible

human intuition and capability to take a basic food item and transform it-through shape, texture, temperature, chemistry, flavor profile-into something completely different and often longer lasting. This step in the food cycle is often overlooked as a key component in addressing both food waste and food insecurity.

“The bad ones, they call them “drops,” you know when they fall on the ground and get bruised, and you really can’t sell those, right? So instead, my grandma would take the apples and bring them and in and either make apple sauce or apple dumplings. Grandma used to even save the peels and make apple sauce with them. She was gonna make sure nothing went to waste, you know?” (Greta Tosi-Miller).

We have the opportunity and knowledge to take those bruised apples, those bent carrots, those tiny peppers and turn them into something nutritious and delicious, and there’s an opportunity there not just to feed people but to revel in the joys of creating it, an experience meant to be shared and to bring joy to those who eat it. When you help prepare food, you automatically develop a deeper connection to that food.

Most food hubs are created with an emphasis on increasing access to and knowledge of local foods. They celebrate and protect local farms. This is an often overlooked, but very important benefit of food hubs. As much as gleaning is about rescuing leftover food, whether that is from grocery stores, markets, or farms, farm laborers and food service workers remain some of the lowest paid members of society. Therefore, helping unemployed, impoverished, homeless, and other disenfranchised across the Hudson

Valley is deeply connected to the food system in multiple ways from production to transportation to processing to distribution to consumption and waste.

The Case of Poughkeepsie

As mentioned before, gleaned food goes to what are termed, Emergency Food Assistance Programs or (EFPs). These include Food Banks, Food Pantries, and Soup Kitchens. Food banks are essentially large warehouses where food is aggregated, stored, and redistributed to the other two types of EFPs. The Food pantry is like a store room, mostly filled with non-perishable food items that can be distributed to families in need usually just once/month. Soup kitchens operate on a more regular schedule, preparing and serving meals to anyone in need. Very many food pantries and soup kitchens, especially in the Hudson Valley are based out of churches, which usually already have kitchen and storage space, and they can be used for very reasonable prices or even for free.

(Figure 14) shows a map of the active gleaning networks in the Hudson Valley. The arrows depict the path from farm to EFP. Long Table Harvest operates for Columbia County. They are very new and are struggling with issues of limited staff and limited storage capacity. Ulster Corps operates for Ulster County. They have a very extensive network and are working towards setting up food hubs throughout the county that can be used for storage and processing of food. The Glean Mobile functions in Orange County. They have been operating through grant funding from Cornell Cooperative Extension and are the ones who were willing to share their data with me for this project.

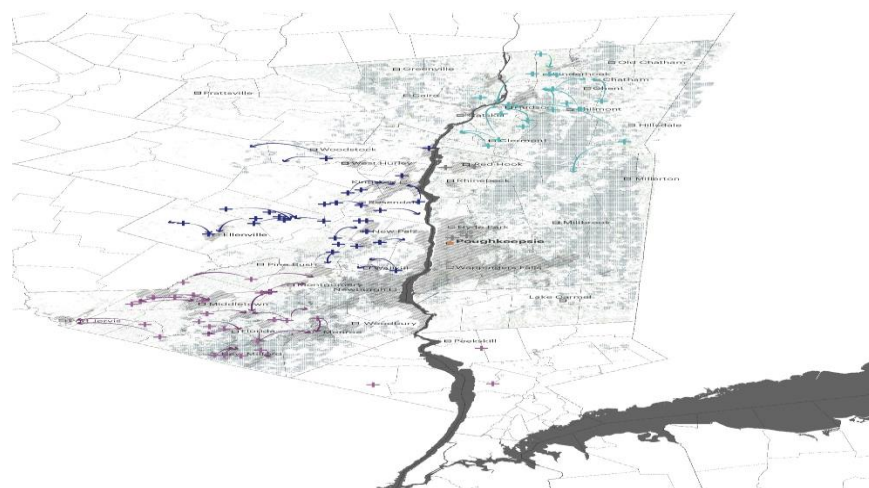


Figure 12: Gleaning Networks in the Hudson Valley.

Looking at this distribution, there are two points I’d like to emphasize.

- These networks largely operate within the boundaries of their county, mostly to prevent overlap from different gleaning operations and for geographic

convenience. This way, the volunteer base won’t have to drive more than 45 minutes to perform a pick-up or drop-off.

- Despite a high concentration of EFPs, Dutchess County is almost entirely lacking a gleaning network. This happens to be where Poughkeepsie is located.

With high numbers of unemployed and impoverished in Poughkeepsie, limited availability of emergency food assistance programs on weekends, and limited time of working individuals, it makes a lot of sense to begin filling these gaps through gleaning. There was a community food assessment done in 2015 in conjunction with the Center for Research, Regional Education, and Outreach (CRREO) that conducted surveys to determine barriers to access to fresh, healthy food in Poughkeepsie. They determined that 15% of PK residents were food insecure without hunger, compared to 9% nationally. 11% were food insecure with

hunger compared to only 5% nationally. The USDA defines food insecure without hunger as experiencing “reduced quality, variety, or desirability of diet with little indication of reduced food intake.” Food insecure with hunger was defined as showing “multiple indications of disrupted eating patterns and reduced food intake.” Even more startling was that a quarter of residents fell under the definition of poverty, which in the US is determined according to income and number of household members, but for a family of four is around \$22,000 / year (**Figure 15**).

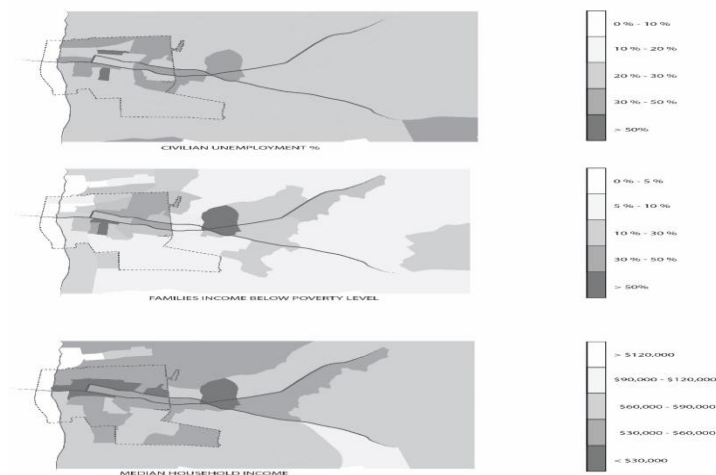


Figure 13: Poughkeepsie Data - US Census Bureau.

Though there is no way to prove that high rates of food insecurity lead to more instances of Emergency Food Programs, there is certainly a correlation between the two, and Poughkeepsie is home to the largest number of EFPs in the region. However, as (**Figure 16**) shows, there are still

gaps in their service schedules on the weekends. This is for two primary reasons: The first is that the people who run them take the weekends off. The second is that most they are run out of churches, which need the space for weekend services and events. Yet, as we know, hunger does not rest.

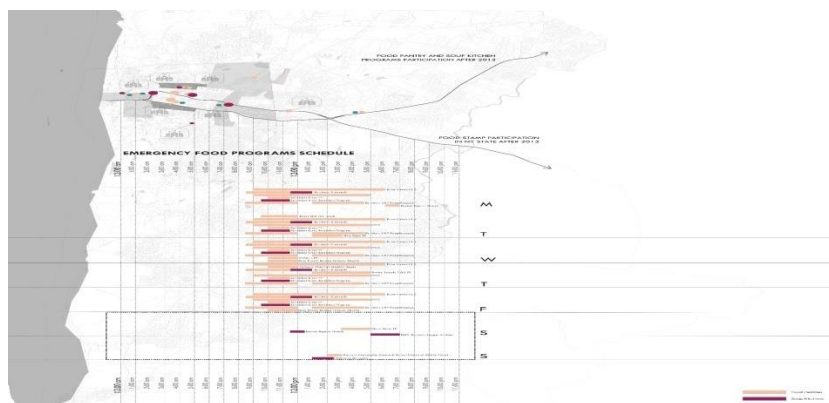


Figure 14: Gap in Weekend EFP Service.

Clearly access to food is limited financially, but it is also limited spatially. If we look at the available grocery options, a lot of people call Poughkeepsie a “food desert” because we only have two grocery stores within the city boundaries. But the truth is, we’re not a food desert, we’re a *fresh and healthy* food desert. Instead of grocery stores, we have a lot

of convenience stores, bodegas, gas stations, and fast food outlets mostly selling pre-prepared or packaged food (**Figures 17 and 18**). Fresh, local food just isn’t readily available for most residents, especially if they don’t own a car, which in Poughkeepsie is around 40% of food insecure households (USDA).

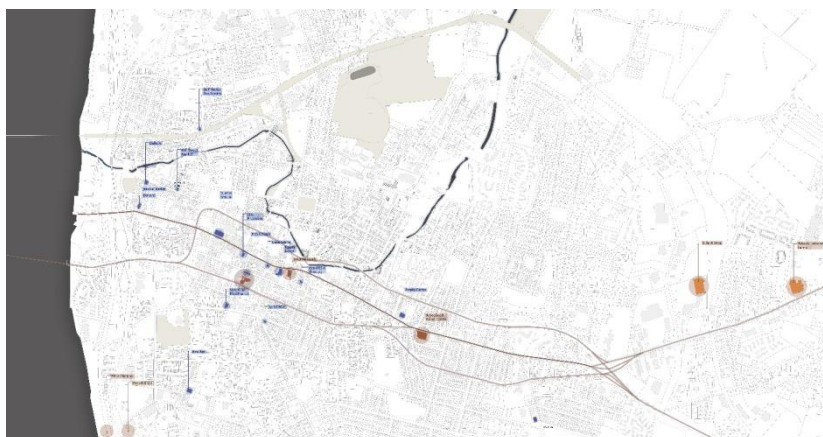


Figure 15: Distribution of Food Options in Poughkeepsie.



Figure 16: Lack of Fresh Food Options in Poughkeepsie.

Other assistance measures are also in place. The third Friday of every month, something called a Farm Stand is held. The Food Bank of the Hudson Valley delivers an entire truckload of rescued food to the city, and volunteers help hand it all out for free. Long lines snake across the block of

people with their bags and carts to collect free groceries for the week, and we almost always see everything disappear. You don't have to be homeless or poor to participate, but the stark divide between those on the giving side of the table and those on the receiving side is quite evident.



Image 5: Feeding the Hudson Valley 2017.

Another event that I have participated in running is called Feeding the Hudson Valley (Image 6), which is a one-day festival geared towards spreading awareness of food waste and insecurity in the Hudson Valley. We spend months gleaning produce so that we can cook meals and give them out to people for free all day. Most people are stunned at how much food can be collected that would have otherwise gone to waste.

In Poughkeepsie, we are beginning to develop plans for a facility that could not only be used for storage and

processing of gleaned food, but could also train and provide jobs for people in the process (**Figure 19**). This “food hub” would make a gleaning network in Dutchess County feasible by providing an outlet for the food, but it would also help coordinate the involvement of the poor and rethinking the role of charity. What if all those volunteer hours spent collecting, transporting, preparing, and serving food to community members in need were performed by people who are unemployed or in need of training, and what if they could earn living wages for doing it?

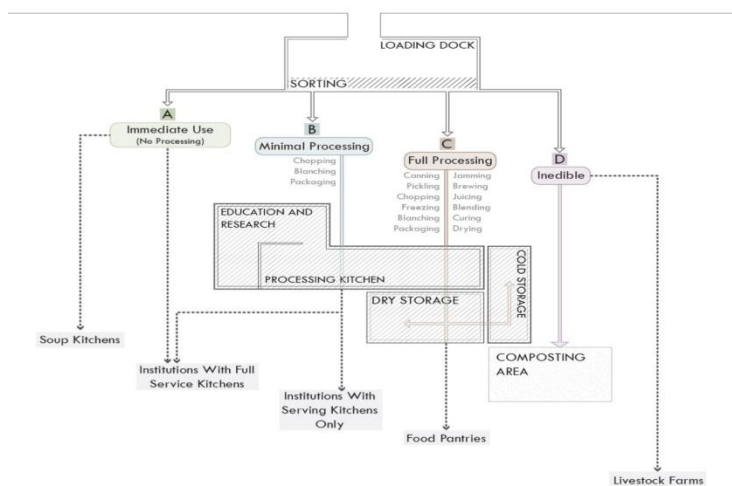


Figure 17: Poughkeepsie Food Hub.

The potential for an expanded Hudson Valley Gleaning Network and associated food hubs cannot happen without full support and involvement from a wide range of both local and regional organizations. Gradually, a vision for a more interconnected and food secure region is developing.

It is not a quick or easy process, but it is founded on a widely shared belief that everyone deserves access to fresh, healthy food, and that this is only possible with the inclusion of all components of the food system (**Figure 20**).

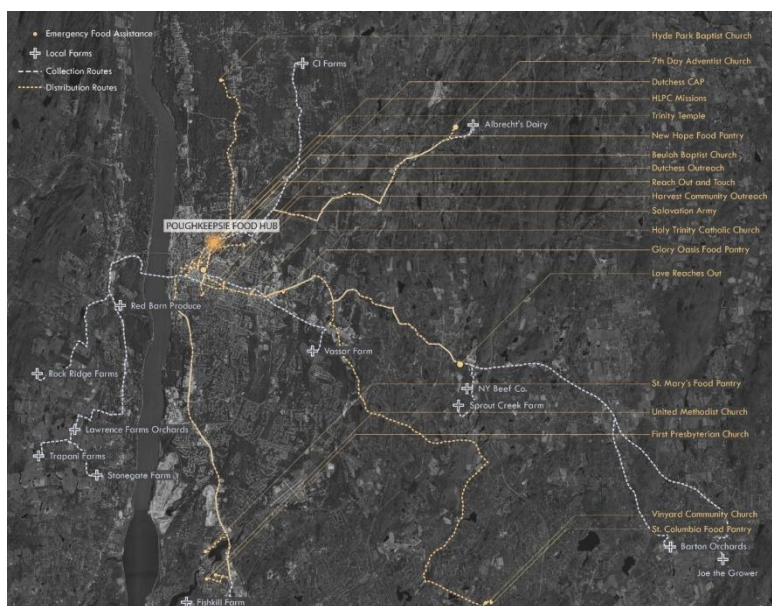


Figure 18: Poughkeepsie Food Hub Local Network.

Conclusion

I was talking to a Poughkeepsie resident the other day, and she said something that really struck me:

“People are always advertising their events with free t-shirts, free food, free health care...and no one shows up. What they don't realize is: we don't want free hand-outs. We want to be able to afford those things on our own. We may be poor, but we are proud.”

Her statement really highlights the need to blur the divide between the givers and the receivers; between the poor and the fields. Most people who need food are also in need of many other things, including jobs, health care, and housing. Emergency Food Programs were never designed to be long-term solutions to systemic problems such as these. They are still just a band-aid for cuts that run much deeper than what we can see on a day-to-day basis.

Here is a list of key findings that came out of this project.

- Acknowledge that food insecurity is inextricably linked to poverty
- Remember that Emergency Food Programs were never meant to be permanent
- Continue to research and experiment with new ways to process, store, and prepare recovered food for year-round access to quality local food
- Integrate, rather than exclude those who are affected by poverty
- Treat gleaning and food distribution programs as an opportunity to deepen training and leadership among communities most affected by systemic racism, discrimination, and poverty

The poor do not have a right to leftovers, pity, and charity; they don't have a right to gleaning; but they do have a right to fulfilling work and an income that will support them and their families in a fulfilling way; they have a right to access the physical, cultural, environmental, and educational assets of their region; they have a right to produce food and manage land to its full potential. These rights are not

written in scripture or mandated through laws, they are instinctual; they are there as we gaze into another's eyes and recognize a bit of ourselves; and they are there when we realize that the thrill that comes from helping others is best when it is reciprocated.

The matching of food abundance and food scarcity is not as simple as I had once imagined, but it is necessary, and it is going to require the integration of farmers and urban residents, policy and community initiatives, job creation and food recovery, institution and city, youth and elderly, men and women. It is my hope that visualizing and exposing current systems in this way will help us to reimagine and catalyze widespread shifts towards a more just and equitable regional food system.

References

1. Badio S (2010) “Understanding Gleaning: Historical and Cultural Contexts of the Shift from Rural to Urban Models for the Improvement of Food Security.” Food Security Research Network, 2009. Scribd. Web. Barrett, Christopher B. “Measuring Food Insecurity.” *Science, New Series* 5967: 825-828.
2. Jon E (2004) “Hunger in America: A History of Public and Private Responses.” Harvard Law School.
3. King, Peter. “Customary Rights and Women's Earnings: The Importance of Gleaning to the Rural Labouring Poor, 1750-1850.” *The Economic History Review, New Series, Wiley Online* 44: 461-476.
4. Nevarez L, Grove S, Tobin KT, Simons J (2014) “Poughkeepsie Plenty: Community Food Assessment.” *Center for Research, Regional Education, and Outreach. State University of New York at New Palz*,
5. “Role of Gleaning in Efforts to Alleviate Hunger (1987).” *Select Committee on Hunger. US Government Print Office. Washington, USA.*
6. Vardi L (1993) “Construing the Harvest: Gleaners, Farmers, and Officials in Early Modern France.” *The American Historical Review, Oxford University Press on behalf of the American Historical Association* 98: 1424-1447.