Reducing Food Waste at the University of Pennsylvania: A Proposal for an Institutionalized Food Recovery Program

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Executive Summary

From farm to fork, food production accounts for 10 percent of the U.S. energy budget, 50 percent of land utilization, and 80 percent of freshwater consumption. However, 40 percent of food is wasted every year, translating to 20 pounds of food per person each month. Simultaneously, one in six Americans is at risk for hunger and this number increases to one in four in Philadelphia. Institutions, particularly universities, have the potential to make an impact on changing these statistics. We are students, who spent the fall 2013 semester in Professors Mary Summers and Jane Kauer’s Politics of Food course, researching food insecurity, food waste, and food recovery throughout the nation and in the Philadelphia area. Through our research, we have found that one of the best ways to reduce food waste at Penn is to implement a food recovery program. In the following summary, we will highlight the importance of food waste reduction, Penn’s current initiatives, why food recovery proves one of the best approaches to reducing food waste, and how such a program can be implemented at Penn.

Since 2006, 74 percent of pantries, 65 percent of kitchens, and 54 percent of shelters affiliated with Feeding America, the nation’s largest hunger relief organization, have reported increasing amounts of clients. This need is especially acute in West Philadelphia, as it is a low-income area associated with food deserts, low supermarket sales, and high rates of diet-related deaths. Further, food insecurity can contribute to educational development problems, lower future income levels, and physical and mental health issues in both youth and adults. In these ways, the effects of hunger are compounded significantly.

Penn has implemented several initiatives to reduce waste and alleviate hunger, yet the university has the potential to accomplish much more. Penn has instituted composting in the all-you-can-eat dining halls, Houston Market, Joe’s Café, and a few other buildings. In addition, Penn has partnered with Bon Appétit Management Company, a sustainable food service provider that has launched many initiatives to reduce food waste at the source. A variety of other student- and faculty-driven initiatives have sought to raise awareness and affect change on the issues of waste and hunger in the surrounding community. The reality remains, however, that the issues of the food waste that Penn generates and the high levels of food insecurity in the Philadelphia community could be better addressed by an effective food recovery program.

Introducing a food recovery program will advance the objectives of the Penn Compact and the Climate Action Plan and allow Penn to remain on par with its peer institutions. A food recovery program will enable Penn to engage further with local communities, reduce environmental impact, and minimize waste, all of which are encompassed within the Penn Compact and the Climate Action Plan. In addition, university food recovery programs have been expanding rapidly. Among Penn’s peer institutions, Brown, Columbia, Stanford, the University of Chicago, Harvard, and Princeton have all implemented food recovery programs. Penn’s food service, Bon Appetit has also played an active role in instituting food recovery programs in many of the institutions it works with. Developed and launched by Feeding America in 2012, the Online Marketplace has proved an especially effective way of maximizing food recovery at a

2 www.hungercoalition.org
3 www.feedingamerica.org
5 www.feedingamerica.org
6 October 22, 2013 Interview with FRES Environmental Sustainability Director, Dan Garofalo.
number of institutions and universities, many of which are serviced by Bon Appétit. We, therefore, recommend that Penn begin an institutionalized food recovery partnership with Feeding America and Philabundance (our local Feeding America food bank agency) through the Online Marketplace program.

To implement this program at Penn, liability concerns must be addressed. First, there is the Bill Emerson Good Samaritan Act, which states that any institution donating food in good faith will not be held responsible for food related illness.\(^7\) Second, Feeding America’s stringent food safety guidelines and experience with large institutions, like Wal-Mart, Sam’s Club, and Target, ensures that food will be handled in the safest way possible from pickup to final consumption.\(^8\) Once a Bon Appétit client has decided to participate, Feeding America aids local food banks, in this case, Philabundance, and hunger relief agencies in joining the Online Marketplace. The specific hunger relief agency is determined based upon logistical considerations, such as proximity of the client to the agency, the agency’s meal program, and frequency of donation.\(^9\) Philabundance has already expressed interest in collaborating with Penn and will likely be well disposed to joining the Online Marketplace in early 2014. Feeding America works with state Departments of Health and Agriculture to make sure that the Online Marketplace complies with local practices and policies regarding safe food handling. Though this process may take longer if a state has stricter regulations, it would be highly unlikely for Pennsylvania’s state departments to reject the program.\(^10\)

Once Penn Dining takes the initial step of reaching out to institutional partners to discuss the development of a food recovery program at Penn, key partners such as Bon Appétit’s Waste Specialist Claire Cummings, Bon Appétit chefs, a Bon Appétit point person at Penn, and representatives from Philabundance would help to address key logistical considerations, such as where to pilot the program, coordination of a central food pickup location, and the necessary steps for program expansion. Conducting a food waste survey before beginning the program is not necessary, as many of Bon Appétit’s clients have launched food recovery programs without initially knowing how much would be donated. All that is required to launch the program is the ability to donate at least twenty pounds of food per week.\(^11\) Bon Appétit’s current cooking programs aim to reduce food waste, but ensuring that all students receive a variety of food options inevitably results in some level of overproduction. Bon Appétit cafés (cafeterias) at schools smaller than Penn have not found it difficult to meet the minimum donation requirement.\(^12\) As there is no cost to joining the Online Marketplace, the program will be easily expandable throughout Penn’s dining halls and to other universities in the area.

The alternative approach to developing a food recovery program at Penn would be to work though the Food Recovery Network (FRN) chapter. FRN is a food recovery organization that began in 2011 at the University of Maryland – College Park and has expanded to nearly 20 universities nationwide. FRN volunteers package recoverable food in dining halls and transport it to shelters.\(^13\) The ways in which FRN has involved students on these campuses in engaging food

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\(^8\) Cummings, Claire (Bon Appétit Waste Specialist) and Nicole Tocco (Bon Appétit Senior Fellow). Phone Interview. 03 Dec. 2013.

\(^9\) Ibid.

\(^10\) Ibid.

\(^11\) Cummings, Claire and Nicole Tocco. Phone Interview. 14 Nov. 2013.

\(^12\) Ibid.

\(^13\) http://www.foodrecoverynetwork.org/about-us/our-work/
waste and recovery issues are certainly admirable. At Penn, however, we have concluded that this FRN model, which relies so heavily on student volunteers, would prove problematic for several reasons. First, past student-run food recovery initiatives at Penn have been unsuccessful due to the transiency of the student body and the difficulty of retaining a consistent volunteer base throughout the ongoing changes in the academic calendar. Second, the FRN model requires that student volunteers obtain ServSafe food safety certification through a training course and subsequent exam in order to package food; and again, the likelihood of insuring a constant, well-trained body of volunteers throughout the academic calendar and from year to year is problematic. An institutionalized model involving a direct collaboration between Penn and a hunger relief agency like Philabundance (whose staff receive ServSafe training as part of their employment) will mitigate both liability issues and concerns regarding the program’s sustainability. There are also a variety of ways in which Bon Appetit at Penn and the student groups who have expressed interest in food waste and recovery issues can promote greater support and engagement with these issues on campus (See Appendix I). Penn can also decide to collaborate with FRN through applying to and supporting the FRN “seal of approval” certification program for institutions that engage in food recovery. (See Appendix G)

With support from Bon Appétit, Philabundance, and a variety of students – of different schools and years – who have expressed interest in partnering with us to start a food recovery program, we strongly encourage Penn to consider the implementation of an Online Marketplace food recovery initiative. Beyond reducing waste and alleviating hunger, beginning such a program will allow for increased student awareness through creative waste reduction campaigns and for easier future expansion into reducing non-recoverable food waste, such as conversion of waste into animal feed.

The issues of food waste and hunger have significant social, environmental, and economic consequences throughout the world and in our surrounding community. As a prominent academic institution, Penn has the potential to become a leader in the areas of waste reduction and food recovery and to further its commitment to local and environmental engagement. At our Food Waste Forum in October 2013, Organizational Dynamics Professor Steve Finn called for “collaboration, partnership, and innovation” to solve the food waste problem. It is now our responsibility to collaborate with each other and partner with the appropriate agencies, all in order to implement an innovative program at Penn to reduce food waste.

14 Ibid.
Introduction

“[I] believe that universities have a responsibility to use knowledge to serve humanity. Effective engagement begins right here at home. We cherish our relationships with our neighbors, relationships that have strengthened Penn academically while increasing the vitality of West Philadelphia.”

- Amy Gutmann, President, University of Pennsylvania (Inaugural Address 2004)

Food waste is a perennial issue. Currently, food production uses 50 percent of U.S. land and 80 percent of freshwater consumption. However, 40 percent of food in America is uneaten, translating to more than 20 pounds of food per person every month. These statistics are daunting, especially when one in six Americans lacks a secure supply of food. Institutions, specifically universities, can make an impact on changing this statistic. Hinged on this premise is that universities are conducive to problem-based learning. In this pedagogic approach, students apply previous knowledge in solving a problem, generating new knowledge in the process. Drawing upon problem-based learning, the problem in this case is the role that the University of Pennsylvania can play in reducing food waste. We are students in Professors Mary Summers and Jane Kauer’s Politics of Food course, who are advocating for an increase in the efforts to reduce food waste at Penn. Thus, as mentioned in President Gutmann’s inaugural address, we have used knowledge to effectively engage and serve our community. Based on our findings, it is clear that the best way to augment efforts of reducing food waste at Penn is to implement a food recovery program. First, we will highlight why the issue of food waste reduction is imperative to address from Penn’s perspective. Next, we will discuss what Penn is currently doing to solve this issue. Then, we will demonstrate why food recovery is the approach to further reduce food waste. Finally, we will propose steps to how a food recovery program can be implemented at Penn.

I. The Problem

A. Hunger and Food Insecurity in America

While the United States of America is one of the wealthiest countries in the world, millions of Americans face food insecurity – defined by the World Health Organization as lacking access to sufficient, safe, nutritious food to maintain a healthy and active life – every day. Though there are federal programs that address this issue, including the Supplemental Nutrition Assistance Program (SNAP), these efforts have been unable to limit the number of food insecure individuals in the nation. As one of the hungriest cities in America, Philadelphia has responded

15 USDA economic Research Service, “Major Uses of Land in the United States.”
16 SDA economic Research Service, “Major Uses of Land in the United States.”
to this need through a variety of programs, including the Greater Philadelphia Coalition Against Hunger (GPCAH), The Food Trust, SHARE and Philabundance, an affiliate of Feeding America. As SNAP has suffered cutbacks in recent months, regional food banks have and will continue to face increased demand. Simultaneously, 20 billion pounds of food are wasted every year in the food service industry. Such food waste has significant environmental consequences. Food production utilizes 10 percent of America’s energy budget and wastes freshwater, chemicals, energy, and land. Food that is disposed of in landfills contributes to 16 percent of the country’s methane emissions. As a result, food waste exacerbates the hunger and food insecurity that impact every single county in America and continues to worsen global environmental conditions.

Among affiliates of Feeding America, a hunger relief charity consisting of a nationwide network of food banks, 74 percent of pantries, 65 percent of kitchens, and 54 percent of shelters reported increasing amounts of clients since 2006. The 2008 Southeastern Pennsylvania Household Survey displayed that in twenty-two out of forty-seven Philadelphia zip codes, over 17% of residents claimed they had reduced their meal size as a result of costs. West Philadelphia zip codes (including 19104, 19131, 19139, 19143, and 19151) were included in this group, with 17.8% of respondents in the University of Pennsylvania’s 19104 zip code reporting a reduction in meal size. In addition, The Food Trust’s 2001 report entitled Food For Every Child: The Need for More Supermarkets in Philadelphia, mapped levels of food access across Philadelphia and discovered West Philadelphia as an area with low income, low supermarket sales, and higher rates of diet-related deaths. These studies, conducted by a wide variety of organizations, illustrate the need for greater aid to food insecure communities like West Philadelphia.

While food insecurity is a large problem in and of itself, hunger has also been shown to impact numerous aspects of an individual’s life, including educational development and future income levels. For young children, a healthy diet affects physical and mental health, academic performance, and future economic productivity. According to Lisa Hodaei, Deputy Director of Acquisition at Philabundance, hungry children earn $260,000 less on average than their well-nourished peers and are 50% more likely to miss days of school. Furthermore, food insecurity in America has led to increasing levels of obesity and diet-related diseases, such as diabetes and heart disease. Many cite obesity as evidence that low-income individuals clearly do not suffer from hunger, and further, that they are eating too much, not too little. However, the prevalence of unhealthy, cheap foods in low-income areas has caused food insecurity to contribute to America’s obesity problem. In the Philadelphia area, 30 percent of school-age children are overweight or obese. Hunger and food insecurity are not only major issues in Philadelphia, but also affect the education and health of Philadelphia’s residents and youth. Please see Appendix A for more information.

22 www.feedingamerica.org
25 www.feedingamerica.org
27 www.thefoodtrust.org
II. Current Efforts

A. Current Institutional Efforts
Penn is currently implementing various efforts to reduce its food waste. Through conversations with Penn’s Facilities and Real Estate Services’ Environmental Sustainability Director Dan Garofalo, we learned that one of the main efforts on campus is composting, which is currently ongoing in the all-you-can-eat dining halls, as well as Houston Market and Joe’s Cafe. Penn collects the compostable materials here and then ships them to the Wilmington Organics Recycling Center in Delaware. However, as per the EPA’s Food Recovery Hierarchy (Figure 1), composting is only one step above landfills and incineration. When food is composted, rather than eaten, most of the resources and energy put into producing the food is wasted; whereas the EPA puts recovering and donating food to feed hungry people near the top of its Food Recovery Hierarchy, just below “source reduction,” a practice that Bon Appétit Management Company (BAMCO) is already committed to putting into place.

BAMCO’s business model revolves around being a leader in sustainable practices. They focus on source reduction (at the top of the EPA pyramid) by allowing their chefs the flexibility to control the menus and only cook what they need. In 2009, Bon Appétit launched a food waste reduction campaign by monitoring portion sizes and weighing food waste in order to increase awareness of waste in their dining halls. While Bon Appétit’s efforts are quite significant, waste still inevitably occurs due to the nature of large, institutional dining operations. More action can be taken to reduce our waste through a food recovery program.

One of the final institutional efforts on our campus tackles the issue of hunger in Philadelphia directly. Many Penn volunteers work with the University City Hospitality Coalition (UCHC) to serves meals close to campus six days a week. Every Sunday, for example, Hillel sponsors a soup kitchen with the help of student volunteers and invites members of the Philadelphia community into Steinhardt Hall for a meal and companionship. Efforts such as these are crucial aspects of Penn’s already strong commitment to serving those in need, and we are looking to continue to expand these initiatives.

B. Student and Faculty Driven Initiatives

1. Pheedin’ Philly
   Last year, Penn Professor Steve Finn led a group of his students in an initiative to raise awareness about food waste at Penn in the hopes of ultimately reducing this waste. One aspect of the group’s awareness campaign was an event held on Locust Walk to teach members of the

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Penn community about the problem of food waste. The group gave students, faculty and other members of the community samples of food that would have otherwise been thrown out to prove that we often discard food that is perfectly fine to eat. They also produced videos and utilized social media to further spread their message.31

2. More Than Pennies

More Than Pennies is a student-run initiative that was founded in 2009. The group began with individual students encouraging their friends to fill takeout boxes from the dining halls and deliver them to the homeless in West Philadelphia. The initiative now partners with Penn Dining by allowing students to donate their meal swipes at the beginning and end of each semester. Penn Dining chefs then prepare the corresponding amount of food and students help to prepare and serve the meals at the Sunday Breakfast Rescue Mission. This effort highlights students’ desire to not only aid the surrounding community, but also to heighten other students’ awareness about hunger in Philadelphia. However, More Than Pennies is only able to deliver one meal per month and, due to its student-run nature, has experienced some difficulties continuing the program over the years.32 Given the food waste that Penn generates and the high levels of food insecurity in the Philadelphia community, more effective and frequent programs are needed at Penn.

III. Why Food Recovery at Penn?

A. Penn’s Commitment to the Community

A food recovery program at Penn aligns with both the Penn Compact and the Climate Action Plan, through which Penn has declared its commitment to engage with the local community. The Penn Compact contains three overarching goals: increase access, integrate knowledge, and engage locally, nationally, and globally. With regard to this last component, Penn has already formed a variety of partnerships to contribute resources and knowledge to local and international communities. Locally, Penn has collaborated with West Philadelphia’s Henry C. Lea Elementary School and the Knowledge is Power Program (KIPP), extended the Penn Alexander partnership, and engaged with the community through construction of spaces like Shoemaker Green and Penn Park.33 In addition, Penn’s 2009 Climate Action Plan seeks to minimize waste, among other objectives. Penn’s waste mitigation strategies have focused on various recycling efforts, environmentally friendly products, and solar compacters. In addition, through programs like PennMOVES, a move-out recycling and re-use drive, and Penn’s partnership with Bon Appétit, the university has sought to increase awareness about waste, recycling, and sustainability.34 By implementing a food recovery program, Penn will be able to increase its engagement with the local community and promote sustainability in ways that are consistent with the Penn Compact and the Climate Action Plan.

31 http://pennfoodwasterevolution.wordpress.com/
32 November 4, 2013 Phone Conversation with More than Pennies President, Krystyna Simon.
33 http://www.upenn.edu/president/penn-compact/archives/engage-locally-nationally-and-globally
B. Peer Institutions

Food recovery is a growing trend amongst peer institutions, and it is important for Penn to implement such a program to remain on the forefront of local and environmental engagement. Furthermore, it is important to consider what our peer institutions are doing to better inform our efforts on a food recovery program at Penn. Currently, six of our peer institutions (Brown, Columbia, Stanford, University of Chicago, Harvard, and Princeton) have or have had some kind of food recovery program. More detailed information about each school’s food recovery program at our peer institutions can be found in Appendix B. Many of our peer institutions have been implementing food recovery programs for years; it is time for Penn to do so as well. Further, given Penn’s location in an urban setting, an institutionalized program like those at Harvard, Columbia, and UChicago is likely to be most successful.

C. Student Interest

There has also been great student interest in a food recovery program. In mid-October, a discussion paper we wrote and presented about reducing food waste and implementing food recovery at Penn received wide support by members of the Undergraduate Assembly (UA). We will work with the UA and major student groups on campus to increase awareness about reducing food waste and gather traction for a food recovery program. We will also work with the UA further to produce a resolution showing formalized support for a food recovery program.

In our meetings with various members of the Penn community, we found that students of different schools and levels of study were passionate about reducing food waste. Ben Schmitt, a German exchange student at Penn, has successfully rallied over 50 students in less than 3 months around the issue of reducing food waste. Graduate and undergraduate students alike, including Catherine Brinkley, Hannah Phillips, Alex Moreno, and Elena Crouch, have expressed interest in partnering with us to establish a food recovery program at Penn. They are simply a few examples of students who have been researching and advocating for reduction of food waste at Penn.

D. Low Cost Solution

Implementing a food recovery program is low cost. The time and energy required of Bon Appétit staff to package the food is minimal. The biggest cost we foresee is the price of the containers needed to package the food. While they can be expensive, there are many ways of paying for them without Penn Dining incurring these costs. The Penn Green Fund offers a grant of up to $50,000 created by the Green Campus Partnership and funded by Penn’s Facilities and Real Estate Services. Obtaining a small Green Fund Grant would provide us with money to buy reusable containers. We have already spoken to students and staff at Penn’s Green Campus Partnership, who have proven supportive of our idea and willing to help us draft a grant proposal if Penn agrees to implement food recovery.

IV. The Solution

A. The Online Marketplace

Recognizing the merits of implementing food recovery at its cafés, Bon Appétit helped to launch the Online Marketplace program in 2012. A program of the nation’s largest hunger relief

36 http://www.upenn.edu/sustainability/programs/green-fund
organization, Feeding America, the Online Marketplace aids institutions serviced by Bon Appétit and other food service providers to make regular food donations to Feeding America’s affiliate food banks and member agencies.\textsuperscript{38}

To date, the Online Marketplace has proven immensely successful. In less than one year, it has expanded to many Bon Appétit cafés and been implemented by large chains like Panera Bread and Hilton Hotels.\textsuperscript{39} The program has also generated positive press coverage for participating institutions. In December 2013, the University of Portland, Bon Appétit’s client and a member of the Online Marketplace, was filmed for the ABC television network show, The Chew, for its food recovery work with its Feeding America affiliate.\textsuperscript{40} In the next sections, we outline the five steps needed to implement the Online Marketplace at Penn.

1. Overcoming Liability Concerns and Convincing Penn to Implement Food Recovery

This is probably one of the hardest steps in the process of implementing food recovery. Large institutions like Penn often worry about the potential liability issues that can arise from unsafe food handling and food related illness. There are two ways to address these concerns. First, there is the assurance provided by the Bill Emerson Good Samaritan Act, which states that any institution donating food in good faith will not be held responsible for food related illness (Appendix C).\textsuperscript{41} Second, there is the assurance provided through Bon Appétit’s partnership with Feeding America. While many hunger relief organizations exist in the U.S., Bon Appétit chose to partner with Feeding America largely because of its ability to provide the highest level of food safety assurance.\textsuperscript{42} With the nation’s most stringent food safety guidelines and experience partnering with large institutions like Walmart, Sam’s Club, and Target, Feeding America builds confidence that the donated food will be safely handled by the partner agency and that liability concerns will be minimal.\textsuperscript{43} The organization’s clear chain of responsibility also provides assurance that potential problems with the partner agency can be addressed efficiently and effectively.\textsuperscript{45} Though liability concerns are understandable and may seem challenging to overcome, several large, reputable institutions have been able to successfully address them and Bon Appétit clients who have implemented the Online Marketplace have not experienced any liability problems.\textsuperscript{46}

2. Finding a Partner

After Bon Appétit’s client agrees to participate in the program, Feeding America utilizes its network of 200 affiliate food banks and 60,000 hunger relief agencies under the affiliates’ umbrella to find a partner for Bon Appétit’s clients. It enrolls the affiliates and agencies in the Online Marketplace program and matches them with Bon Appétit’s clients primarily by taking into account logistical considerations (such as the proximity of the client to the hunger relief agency, the agency’s meal program, and the frequency of donation).\textsuperscript{47} In other situations,
Feeding America has not experienced any difficulties enrolling their partners in the Online Marketplace and on average has been able to launch food recovery programs within one month of pairing the donor institution and the partner agency. In Philadelphia, Feeding America would contact its local affiliate, Philabundance, to match Penn with a local hunger relief agency. Spanning over nine counties in Pennsylvania and New Jersey, Philabundance has over 500 member agencies under its umbrella and experience matching the agencies with large companies like Costco, Whole Foods and Trader Joes. Headed by Wharton graduate William Clark, Philabundance seems very open to working with Penn and will likely be well disposed to joining the Online Marketplace in early 2014.

3. Working with the State Departments of Health and Agriculture

Once Feeding America convinces a hunger relief agency to join the Online Marketplace (which has not proven difficult in recent attempts to implement food recovery), the organization works with State Departments of Health and Agriculture to ensure that the program complies with local safe food handling practices and policies. In Washington, Oregon and Illinois, government agencies have reviewed and approved of the Online Marketplace in a short amount of time with few changes. While different states have different food safety guidelines and the process may take longer if a state has stricter regulations, given Feeding America’s experiences around the country, it would be highly unlikely for the state of Pennsylvania to not approve the program.

4. Figuring Out the Logistics

After Feeding America makes sure that the Online Marketplace complies with state guidelines, Bon Appétit works with the partner agency to outline the logistical details of the program. Details such as picking one café to pilot the program, coordinating a central food pickup location, choosing when to expand the program, and selecting containers to package the food are worked out in a meeting between Bon Appétit waste specialist Claire Cummings, Bon Appétit at Penn Dining chefs and managers, and representatives of the hunger relief agency.

While institutions often contemplate conducting food waste surveys before implementing food recovery, doing so is not a prerequisite for launching the Online Marketplace. All that is required to launch the program is the ability to donate at least twenty pounds of food per week. This has not proven difficult for other schools that are significantly smaller than Penn. Though Bon Appétit’s current efforts aim to reduce food waste, ensuring that all students receive a variety of food options results in some level of overproduction. As a result, there will almost always be some quantity of excess food available for donation.

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48 Ibid.
49 Ibid.
51 Cummings, Claire and Nicole Tocco. Phone Interview. 03 Dec. 2013.
53 Cummings, Claire and Nicole Tocco. Phone Interview. 03 Dec. 2013.
54 Ibid.
55 Ibid.
56 Cummings, Claire and Nicole Tocco. Phone Interview. 14 Nov. 2013.
57 Ibid.
58 Ibid.
59 Ibid.
Through the Online Marketplace program it is possible for institutions to record the amount of food they are donating. The Online Marketplace has a reporting platform that enables the nonprofit agency to electronically track how much food a Bon Appétit café (cafeteria) donates on a monthly and yearly basis. From the recorded data, the Online Marketplace generates charts that demonstrate the amount of food an institution donates individually and how much food all Bon Appétit cafés collectively give. Figure 2 is an Online Marketplace chart showing how much food three Bon Appétit cafés in Oregon have donated in seven months (Appendix D). Since the programs were added one after the other to the Online Marketplace and the Bon Appétit staff gets better at identifying recoverable food as it grows accustomed to the program, the amount of food tends to increase as time progresses. Appendix E provides more information about what foods can and cannot be donated.

5. Launching the Online Marketplace, Facilitating Expansion, and Ensuring Continuity

The Online Marketplace is ready to be launched after Bon Appétit and Feeding America have followed the steps outlined above. Once implemented, it proves relatively easy to manage and expand. Since the regional food bank would be trained to establish the program, it would have an incentive to work with other local food service providers to bring the Online Marketplace to other dining facilities, which can join the program without a fee. This would not only facilitate the spread of the program, but it would also create the potential for a food recovery domino effect in the region.

In terms of sustainability, the Online Marketplace program functions relatively easily through time. Since it involves Bon Appétit staff packaging the food and members of the hunger

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60 Ibid.
61 Cummings, Claire."Re: Class Presentation."Message to Alyssa Dickinson and Cynthia Plotch. 19 Nov. 2013. E-mail.
62 Ibid.
63 Cummings, Claire."Re: Class Presentation."Message to Alyssa Dickinson and Cynthia Plotch. 19 Nov. 2013. E-mail.
relief picking up the food, it does not experience some of the continuity issues faced by other food recovery programs like the Food Recovery Network (FRN).64

B. Why not FRN?

Although there has been interest in starting a Food Recovery Network chapter, based on our research, we have concluded that this is not the best way to bring food recovery to our campus. Founded in 2011 by students at the University of Maryland – College Park, FRN has opened chapters on nearly twenty different campuses across the country.65 At each campus, student volunteers package recoverable food in the dining halls, transport it to a local shelter or pantry, and serve the food to hungry people in the community.

However, implementing this model at Penn would prove problematic. One major issue with this framework is its sustainability in the long term. Past student-run food recovery initiatives at Penn have been unsuccessful due to the transiency of the student body and the difficulty of retaining a consistent student volunteer base. By partnering with an outside organization and implementing the Online Marketplace, we are ensuring that this food recovery program will be in place for years to come. In addition, implementing an institutionalized model will mitigate the liability concerns associated with a student-run initiative. With FRN, student volunteers must obtain ServSafe food safety certifications through a training course and subsequent exam in order to package food. Collaboration between Feeding America affiliates and certified dining hall workers will ensure that student handling of food is not a concern. For more information on this issue, please refer to Appendix F.

Although we do not recommend starting an FRN chapter at Penn, there are still other opportunities to work with FRN. Recently, the organization began a certification program for institutions that do not have student-run food recovery models. This offers Penn the opportunity to ensure the sustainability of the program, mitigate liabilities, and support the FRN’s growing movement. Please see Appendix G for more information on FRN certification.

V. Future Considerations

A. Tackling other Food Waste

1. Food Waste as Animal Feed

Though the Online Marketplace provides a solution for reducing food waste and simultaneously alleviating hunger, certain types of food cannot be recovered and donated (see Appendix E again). In the future, the University could address this type of food waste by partnering with a local farm and converting such food waste to swine feed.

There are many benefits to implementing a food waste to animal feed program. Firstly, there are environmental benefits to diverting food from landfill, such as avoiding methane production, which occurs in landfills, and decreasing water and land used to produce unnecessary commercial animal feed.66 Additionally, according to the EPA Food Recovery

64 Ibid.
65 http://www.foodrecoverynetwork.org/about-us/our-story/
Hierarchy pyramid (Figure 1), conversion to animal feed is a better food recovery tactic than composting, which is Penn’s current strategy for dealing with this waste. Penn would not be the first university in the region to undertake such an endeavor. Rutgers University in New Brunswick, New Jersey has partnered with Pinter’s Farm since 1960 to convert food waste generated by its dining halls into livestock feed. In 2007 alone, Rutgers saved $100,000 in hauling costs, while simultaneously lessening its impact on the environment. For more information, see Appendix H.

2. Mitigating Student Waste and Promoting Student Engagement

While the Online Marketplace is one method of reducing food waste, the university must implement complementary initiatives to raise student awareness of other causes of waste. Students generate large amounts of food waste by simply taking more food than they can eat in the dining halls. Though it may seem difficult to change student habits and reduce food waste in this way, it is possible. At other institutions serviced by Bon Appétit, students have been able to save hundreds of pounds of food from going to waste through a variety of campaigns, challenges, and speaker series. They have managed to raise awareness and found creative solutions to address the problem at their schools’ dining halls, some of which are listed in Appendix I.

With the right kind of support, Penn students can do the same and launch new, even more creative initiatives. To facilitate the coordination of food waste reduction activities, we strongly encourage Penn to create a position on the Dining Advisory Board. The student in the position would serve as a liaison between students and the Penn administration on issues of food waste and be responsible for overseeing and promoting student food waste reduction efforts. He/she would ensure that proposed food waste reduction efforts align with Penn’s sustainability commitments and facilitate the creation of a greener, more vibrant campus.

Conclusion

The problem of food waste is significant and growing, and is made even more urgent due to the fact that one in four people in Philadelphia is considered food insecure. As a prominent academic institution, Penn can become a part of the solution and has the potential to be a leader in the areas of waste reduction and food recovery. By implementing the Online Marketplace through a partnership with Feeding America and Philabundance, Penn can create a sustainable program that will benefit both the Penn and the West Philadelphia communities. Such a program will allow Penn to further its commitment to local and environmental engagement and encourage other universities and institutions to do so as well, thus setting a precedent for other schools in Pennsylvania to implement the Online Marketplace and creating the potential for the multiplication of food recovery efforts in the area. At our Food Waste Forum in October 2013, Professor Steve Finn called for “collaboration, partnership, and innovation” to solve the food waste problem. It is now our responsibility to collaborate with each other and partner with the appropriate agencies, all in order to implement an innovative program here on Penn’s campus to reduce our food waste.

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67 Ibid.
68 Correspondence 4
69 Cummings, Claire "Re: Class Presentation."Message to Alyssa Dickinson. 19 Nov. 2013. E-mail.
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Appendices

Appendix A: Hunger in Philadelphia

For decades, the United States has had federal programs in place to provide for the hungry and food insecure; however, while overall conditions have improved, these programs are ultimately inadequate in meeting the demand of today’s population. From 1969 to 2006, federal spending on food stamps (SNAP), supplemental nutrition for women, infants, and children (WIC), and school lunches has increased in aggregate and per person in poverty. Though SNAP is considered “the bulwark of the current nutrition safety net…a lifeline to tens of millions of struggling Americans,” food stamp (SNAP) benefits are typically much smaller than necessary: only 17% of individuals surveyed at emergency food programs said their benefits lasted them the entire month. Additionally, Pennsylvania imposed an extra, more stringent requirement on SNAP benefits in May 2012. This asset test disqualifies households with more than $5,500 in assets and at the time, was expected to disqualify over 4,000 previously eligible Pennsylvania households from the program. Further, Philabundance believes 47% of food insecure households in the Philadelphia area earn too much to qualify for any food assistance program. Furthermore, the recent decision to change the sunset date of the 2009 American Reinvestment and Recovery Act (the Stimulus Package) resulted in a cut in food stamp benefits for approximately 47 million Americans; in Pennsylvania, these cuts are expected to result in 68.8 million meals lost. These cuts will become even more severe with the passage of the 2014 Farm Bill, which will $8.6 billion dollars from the SNAP program over the next ten years. The Philadelphia Coalition Against Hunger estimates that when the Farm Bill goes into effect, 175,000 households in Pennsylvania will lose an average of $65/month in food assistance, with seniors on fixed incomes losing as much as $130/month. Food banks nationwide expect to see significantly increased demand due to these cuts; Clearly, SNAP benefits, particularly in Pennsylvania, are not only providing inadequate quantities of food for those who qualify, but are also so low that it is challenging to purchase nutritious options and prepare well-balanced meals. While federal programs do provide some benefit, they are “a functioning, albeit imperfect safety net…[with] holes large enough for millions of Americans to fall through.” As a result, SNAP and other federal food programs must, for now, be supplemented with additional efforts that can better ensure adequate food to Philadelphia residents.

Philabundance, the largest hunger relief organization in the Delaware Valley, which works with many member agencies throughout the region, has experienced twenty-six per cent more people seeking food over the last year. Philabundance receives food donations from farmers, manufacturers, importers, retailers, and community food drives. This food is taken to hunger relief centers, where it is sorted into perishables and non-perishables, labeled, and stored for distribution. Philabundance has specific regulations it imposes on each type of product it

71 Ibid.
72 http://www.hungercoalition.org/
74 http://www.hungercoalition.org/
76 http://www.philabundance.org/about-us/mission-history/
receives; donated products must follow these guidelines in order for Philabundance’s member agencies to accept them. Guidelines on prepared foods include the requirements that food must not be put out for consumption and must be maintained at the appropriate temperature before donation. Such guidelines ensure that the quality and safety of the prepared food is maintained and thus, significantly reduce food safety concerns for the donating institution, Philabundance, the food bank, and the ultimate recipients. Additionally, Philabundance utilizes refrigerated trucks and conducts multiple food inspections at stores and warehouses to ensure the highest food quality. While such a program undoubtedly reduces waste by donating unused food, the amount of product Philabundance receives is not enough to provide for the food insecure in this region. Philabundance estimates that there are approximately a million people in the Delaware Valley, “who face hunger every day.”77 However, Philabundance is only able to provide food to 72,000 individuals every week. Food recovery programs clearly represent one important way to increase donations to Philadelphia food banks and reduce hunger in the short-term.

Appendix B: Case Studies of Food Recovery at Peer Institutions

Of our peer institutions, Stanford, Columbia, Harvard, Brown, Princeton, and the University of Chicago had, or have had, food recovery programs.

Brown University

Out of all our peer institutions, Brown arguably has the most well run food recovery program. Back in 2011, Ben Chesler, a student at Brown, worked with his school’s dining services to create a food recovery program. In this program, student volunteers recover and donate food to people in Providence. Currently, the volunteers of this program have recovered over 10,000 pounds of food. Ben noticed that students were doing similar work at University of Maryland, Pomona, and UC-Berkeley. He worked with students from those schools to create the Food Recovery Network (FRN), a national non-profit that seeks to bring food recovery programs to college campuses. Ben is now studying abroad in New Zealand. However, he put us in contact with Eileen Reavey, Director of Expansion at FRN. Ms. Reavey said that all FRN chapters follow federal guidelines for the handling and transport of food and that they go as far as to keep temperature logs of food when it is picked up and dropped off. She also mentioned that FRN provides grants for start-up costs and provides support each step of the way.

Renata Robles, is the Director of Operations of the Brown FRN Chapter. In an interview, she stated that the Brown FRN Chapter is very successful, with upwards of 85 volunteers. In terms of infrastructural concerns, Ms. Robles directed us to the FRN website where there is a starter kit with online guidelines, including a scripted PowerPoint that can be used to assure administrators of food safety guidelines. In the 2.5 years that FRN at Brown has been in operation, she said that there has not been a legal complaint about food safety. In Rhode Island it is illegal to transport heated food without a refrigerated van, which adds another level of food safety assurance. Furthermore, some students are ServSafe certified, which is a national food safety certification program administered by the National Restaurant Association. FRN at Brown has a very positive relationship with Brown Dining (BD). When FRN was first founded at Brown, administrators were very supportive, which facilitated cooperation with BD. BD went as far as to provide Brown’s FRN with a loading center in the basement of a dining hall with a fridge and a shelving unit as a center of operation and food truck loading area. Ms. Robles said that she has spoken to many dining workers at Brown and they believe in the mission of FRN. Thus, whenever there are events on campus, dining workers know to process food and have it ready for FRN volunteers to pick up to take to the center of operations. She also said that the

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79 Ibid.
80 Ibid.
81 Ibid.
82 Reavey, Ellen. "Food Recovery at the University of Pennsylvania." Message to Joyce Kim
83 Ibid.
84 Robles, Renata. Internet Chat Interview. 01 Nov 2013.
85 Ibid.
86 “ServSafe Food Handler Program.” *ServSafe*. The National Restaurant Association Educational Foundation.
87 Robles, Renata. Internet Chat Interview. 01 Nov 2013.
88 Ibid.
bulk of the food they recover is pastries and bagels, which do not warrant as many safety concerns in comparison to other food, such as hot meals. The current setup at Brown is to have 5-7 ten-minute shifts around different dining halls seven days a week. During these shifts, students take food from the dining halls and deliver it to the center of operations. Then, on Wednesdays and Fridays, there is a driving shift for students to drive the food from the center of operations to the local food bank. Clearly, Brown has a well-organized food recovery program.

Harvard University, Columbia University, and the University of Chicago.

These case studies are all grouped together because we were unable to interview someone from these schools. However, there is still important information from their food recovery programs on the internet that can be used to develop Penn’s food recovery program. At Harvard, the Harvard Dining (HD) Managing Director, David Davidson, wrote in a blog that 800 pounds of leftover food from dining hall kitchens and catered events go to the local Greater Boston Food Bank. The food bank redistributes the food to local food programs to provide 6,000 meals. Mr. Davidson’s article suggests that HD has some kind of institutionalized program with the Greater Boston Food Bank. Davidson is no longer at Harvard, but the university received the EPA’s Food Recovery Challenge Achievement Award for its food donation and composting program on April 1, 2013, suggesting that a food recovery program is still in existence. At Columbia University, Columbia Dining and University Event Management donate about 100 pounds of surplus food to City Harvest, an organization that collects surplus food from institutions across New York City and delivers it to local soup kitchens. Columbia also donates to a local food bank called the Broadway Community Service Pantry. The University of Chicago (UChicago) partners with a local organization called Food Donation Connection, an organization that manages food donation programs for food service companies interested in donating food. In 2011, with the cooperation of Food Donation Connection, UChicago implemented a pilot food recovery program in its three residential dining halls to donate leftover food to Pacific Garden Mission, a rescue mission in Chicago. Based on this background research, all three of these schools have a similar structure of working directly with food banks, rather than through student volunteer intermediaries, in their food recovery programs.

Princeton University

Princeton, on the other hand, had a student-run program called FoodTASK, which was founded and housed in Princeton’s Pace Center of Civic Engagement, Princeton’s house for civic
engagement and community service in 2008. Twice a week student volunteers collected excess food from four residential dining halls and donated it to the nearby Trenton Area Soup Kitchen (TASK). Our concerns about establishing such a student run program at Penn were reinforced, however, by calling the PACE Center and learning that FoodTASK is now defunct.

Stanford University

Stanford’s recovery program is called the Stanford Project on Hunger (SPOON). SPOON student volunteers collect leftover food from campus dining halls, row houses, eating clubs, and catered events. This food is delivered to the Opportunity Center in Palo Alto, where it is recooked and reheated to serve meals. This organization was founded in 1987. In the 2009-2010 school year, 50 student volunteers at SPOON recovered over 12,500 pounds of food. SPOON works with dining hall workers and kitchen managers who package leftover food in aluminum trays and store them. SPOON volunteers then take these trays to the freezers in the Haas Center for Public Service, Stanford’s hub for public and community service. In a phone interview Anne Mai, Director of SPOON, said that in the over thirty years that SPOON has been in existence, the organization has not had any trouble with legal issues involving food safety. Mai said that students are not certified in food handling training because their contact with food is limited. She also said that she believes the success of SPOON can be attributed to the relationship of trust between dining hall workers and students, which facilitates coordination. Although Stanford Dining is one entity, SPOON works with dining halls on a case-by-case basis. Based on SPOON’s long history, food recovery at Stanford has also been very successful.

Analysis of Peer Institution Case Studies

This brief survey of peer institutions suggests that two, Brown and Stanford, have developed and sustained successful food recovery programs based on working through student volunteers, who have an excellent relationship with their dining services. Students at Princeton, however, were apparently not able to sustain the program there. The more direct, institutionalized relationships established between Harvard and the Greater Boston Food Bank, Columbia and City Harvest, and UChicago and Food Donnation Connection suggest the type of model that we think would be most sustainable at Penn.

103 "Overview." Stanford Project on Hunger. Stanford University.
104 Ibid.
105 Ibid.
106 "About Us." Haas Center for Community Service. Stanford University.
107 Mai, Anne. Telephone Interview. 05 Nov 2013.
108 Ibid.
109 Ibid.
Appendix C: Interview with Penn Law Professor Theodore Ruger

Professor Theodore Ruger teaches at the University of Pennsylvania Law School. His interest in food recovery is personal, not academic. He has a general interest in food policy and is aware of the goals of organizations like D.C. Central Kitchens and Philabundance. However his academic and scholarly interests are less pertinent to food recovery. During the interview he did explain some of his current work on the United States Food and Drug Administration’s food labeling. His academic work allowed him to explain that there are no relevant rules for calorie disclosure in a program like food recovery.

The first liability Professor Ruger mentioned would arise if food were spoiled or rotten, which could cause harm to consumers. To prevent this, he recommended having the partner agency’s truck pick up the food on Penn’s campus. Additionally, he explained that if Penn’s food recovery program were to follow all the guidelines set by Philabundance and continue to follow all food preparation rules, Penn should be safe from legal action. Another potential source of legal action is if the donated food triggered an allergic response. In order to mitigate this risk, Feeding America works with the local state departments of Agriculture and Health to ensure that the donated food meets all necessary requirements from the outset of the program.

While Professor Ruger may not be an expert on food recovery, he is a lawyer. Thus, he was able to interpret how various laws relate to this specific project. Specifically, he read over the Bill Emerson Good Samaritan Act, which protects those who donate food from legal repercussions. He explained that the only way it would not apply is if there was “gross negligence or intentional misconduct, meaning that only if there was a blatant failure like not properly refrigerating food.” Additionally, the law states that it protects people, but Professor Ruger explained that “the legal term person tends to include corporate entities like Penn.”

Professor Ruger also provided future legal advice. He recommended looking into Pennsylvania and Philadelphia laws to see if either has a law like the Good Samaritan Law that would impact food storage or transportation. Additionally, he offered to find a law student who might be interested in providing more advice on the topic.
Appendix D: Amount of Food Donated by Three Bon Appétit Cafés in Oregon (2012)

<table>
<thead>
<tr>
<th>Total pounds by month</th>
<th>Total pounds</th>
<th>Total Meals</th>
</tr>
</thead>
<tbody>
<tr>
<td>April</td>
<td>131</td>
<td>109</td>
</tr>
<tr>
<td>May</td>
<td>430</td>
<td>358</td>
</tr>
<tr>
<td>June</td>
<td>464</td>
<td>387</td>
</tr>
<tr>
<td>July</td>
<td>478</td>
<td>398</td>
</tr>
<tr>
<td>August</td>
<td>742</td>
<td>618</td>
</tr>
<tr>
<td>September</td>
<td>515</td>
<td>429</td>
</tr>
<tr>
<td>October</td>
<td>946</td>
<td>788</td>
</tr>
</tbody>
</table>

**Total pounds since launch** 3706 3088

Total Pounds of Food Recovered in Three Bon Appétit Cafés (monthly)
Total Pounds of Meals Recovered in Three Bon Appétit Cafés (monthly)
Appendix E: Recoverable Food Outlined

FOODS TO DONATE

Every organization will have slightly different rules around what foods they can and can not accept. At Bon Appétit, we use Feeding America’s basic guidelines as our standard:

Products acceptable for donation:

• Unserved prepared entrees, side dishes, and desserts
• Unopened containers of food, beverages, condiments, sauces, and spices
• The following unused products:
  o Fresh produce
  o Dairy products
  o Fresh chilled or frozen meat
  o Non-food items

Products NOT acceptable for donation:

• Home canned, vacuum-packed or pickled foods
• Perishable Foods past the “use by” date, unless frozen
• Foods in sharply dented or rusty cans
• Foods in opened or torn containers exposing the food to potential contamination
• Self-serve items from a buffet
• Unpasteurized milk
• Foods with an “off” odor
• Foods prepared, cooked, cooled, or reheated at home (except for baked goods that do not need refrigeration)
• Donations from a donor that has experienced a power outage

The best rule of thumb is to ask yourself if you would eat the food. If the answer is no then you shouldn’t donate it!

------------COMMONLY DONATED FOOD---------------------------------------------

The most common foods donated by Bon Appétit cafés are:

1. Soups and stews
2. Entrees like lasagna, rice dishes, or pizza
3. Baked goods such as day old pastries
4. Packaged items like sandwiches from our grab and go markets
5. Produce that is too ripe to sell or cosmetically damaged but fine to each
Appendix F: Models for Food Recovery

In conducting our research on food recovery, we attempted to determine whether a student-run or an institutionalized model would be best. In terms of a student-run model, we focused on the Food Recovery Network (FRN), which has donated over 200,000 pounds of food to date. However, this method requires a consistent base of student volunteers from week-to-week and from year-to-year. In addition to the ServSafe certification previously discussed, it also requires that students find a food pantry or soup kitchen in the area that can collaborate with the FRN chapter and subsequently set up a delivery system in conjunction with the hunger relief agency.

Both student-run and institutionalized models have merit and deserve consideration. FRN is a growing national movement, one in which Penn’s Ivy League counterpart, Brown University, has already joined. Implementing a food recovery program as part of a larger, ongoing movement may lend more credibility to the work that will be done. Further, Bon Appétit has partnered with FRN to set up chapters across the nation. Together, Bon Appétit and the FRN have created a “Kitchen and Food Safety Checklist for Students” which includes several directives under the sections entitled, “Personal Hygiene,” “Kitchen Safety,” “Controlling Time and Temperature,” and “Transportation.” This checklist serves as a guideline for all student volunteers to follow throughout the entire food recovery process.

However, Bon Appétit has also recently partnered with Feeding America, “the nation’s largest domestic hunger-relief charity,” in order to help recover food within their corporate accounts. Philabundance is the Feeding America affiliate in the Philadelphia area. Establishing a relationship with one of Philabundance’s partner agencies would enable the already food safety trained Bon Appétit employees to package the food. The agency would then come to Penn’s campus to pick it up. By removing the student involvement from the actual food recovery process, we not only mitigate liability concerns but also assure that the program can be sustained both throughout the academic calendar year (including during summer programs) and in the long-term. Further, Bon Appétit and Penn Dining will not incur the costs of transporting the food. With that said, not having direct student involvement may make students and the Penn community in general less engaged with this program and the issues that surround it. This problem could be solved through obtaining FRN certification and conducting waste reduction campaigns, challenges, and events throughout the school year.

As FRN Director of Expansion Eileen Reavey mentioned in email correspondence, FRN leaves the responsibility of finding a partner agency to the students starting the FRN chapter. The partner agency must be a 501c3 non-profit organization that has the refrigeration and freezer equipment to store food, the equipment to properly reheat food before serving, and the flexibility to accept food at a time when students can deliver it, usually at night. Ms. Reavey also

110 http://www.foodrecoverynetwork.org/about-us/our-work/
111 http://www.foodrecoverynetwork.org/about-us/our-story/
mentioned that schools often have an existing relationship with a certain agency, which prompts them to start an FRN chapter and partner with them. Since this is not the case with Penn, and since Bon Appétit has a history of working with Feeding America affiliates, we contend that an institutionalized food recovery program at Penn would be most successful.
Appendix G: FRN Food Recovery Certification

Food Recovery Certified Program Summary

**Purpose**
Every day, America wastes 40% of its food while 1 in 6 American families don’t know where their next meal is coming from. The 72 billion pounds of food America wastes each year amounts to 25% of our total freshwater use, 25% of methane emissions, and costs the economy $165 billion each year. Food recovery is one of the most powerful ways for food businesses to make a direct, tangible impact in their local community while improving environmental sustainability. The businesses that participate in food recovery are heroes. Their customers should feel good about eating there.

Food Recovery Certified is the first certification program around food recovery. Our mission is to recognize and reward food businesses that do the right thing by giving their surplus, unsold foods to nonprofits serving hungry Americans rather than to landfills. Any food business including restaurants, grocery stores, hotels, hospitals, caterers, farms, farmers markets, and college dining halls can apply for certification. Food Recovery Network serves as an independent third party to verify that your food business has a food recovery program in place and award you a window sticker and logo to put on your website and in your establishment. Proudly display the Food Recover Certified logo as our seal of approval, and use the positive PR to attract more customers. Together, we hope to make food recovery the new norm.

**Partners**
Food Recovery Network has proposed a major partnership with Feeding America to leverage their brand and national connections to increase visibility and use of the program. We also are in conversation with Bon Appétit Management Company and Sodexo (prospective Founding Partners) about certifying their establishments as the first participants. Finally, the Montgomery County food recovery initiative has tentatively agreed to partner with us in their county-wide program, which has several hundred establishments. We are developing a list of dozens of major food recovery programs and corporate participants in food recovery, and are interested in having conversations with other potential partners.
Certification Process

1. Businesses apply online to be certified at foodrecoverynetwork.org and pay application fee.

2. Food Recovery Network (FRN) will confirm receipt of application via email.

3. FRN will take up to 90 days to contact the local non-profit(s) indicated by the business and verify that they are receiving recovered food from the business.

4. If the non-profit is not receiving recovered food from the business, FRN will file a non-conformity report and allow the business a one month correctional period to start donating surplus perishable and non-perishable foods to a local non-profit.

5. If the non-profit is receiving recovered food from the business, FRN sends the business a Food Recovery Certified window sticker as well as the high-res Food Recovery Certified logo that the business can display on their website, menu, or other preferred locations.

6. An annual fee will be instated and FRN will perform annual audits to ensure that the business and local non-profit are continuing their relationship.
Appendix H: Using Non-Recoverable Food for Animal Feed

Though food waste is a problem in America, American farms feed their livestock about 41 million tons of plant products per year. This means that each of the about six billion kilograms of animal protein produced in the United States requires almost six kilograms of plant protein. The farmers who raise livestock spend 65-75% of the costs of raising pigs on feed, 55-65% when producing poultry and 65-80% when producing cattle. Combining the abundance of food waste with the high cost of animal feed leads to an obvious solution: using food waste as a source of animal feed. This is a practical solution and one that should be adopted by the University of Pennsylvania.

In the essay, “Feeding Food Wastes to Swine,” M. L. Westendorf and R.O. Myer outline the basics of using food waste as animal feed. Sources of food waste, according to Westendorf and Myer, include restaurants, institutions and schools. These places produce different types of food waste including kitchen and plate waste. Feeding this waste to pigs has become especially popular in rural areas next to metropolitan areas.

In “The Economics of Feeding Processed Food Waste to Swine,” Felix J. Spinelli and Barbara Corso elaborate on Westendorf and Myer’s analysis of food waste-based animal feed’s popularity. They explain that this is not a new idea; pigs have been consuming food waste for centuries. Now, the practice has become popular in areas with a great deal of food waste, the ability (both labor and capital) to process the waste, a lack of grains available for feed and a limited amount of landfill space. Simultaneously, new technologies, like extruders and dryers, are making processing food waste easier and safer.

Westendorf and Myer explain that the Swine Health Protection Act of 1980 (SHPA) legally protects both consumers and pigs. This act requires that food waste containing meat be heat-treated before it is fed to pigs. This helps prevent disease, like hog cholera, foot and mouth disease, African swine fever, and swine vesicular disease, and pathogens, like salmonella, campylobacter, trichinella, and toxoplasma, which could spread to other animals including humans. The SHPA-required heat treatment is done through either the direct fire method or the steam injection method. In the direct fire method, the food waste is placed in a cooking vat that comes in direct contact with flames. In the steam injection method, steam is inserted into the bottom of a pile of food waste and evenly heats the waste as it percolates through. The SHPA does not require food waste without meat to be cooked.

In “Concerns When Feeding Food Waste to Livestock” Daniel G. McChesney points out the various government agencies and laws that relate to all livestock feed, not just swine. On the federal level, the Food and Drug Administration (FDA) is responsible for human safety and the United States Department of Agriculture’s Animal and Plant Health Inspection Service (APHIS) is responsible for preventing animal diseases. It is the APHIS that oversees the SHPA and the Poultry Improvement Plan, two legal documents that aim to prevent disease in animal protein.

118 Spinelli, Felix J., and Barbara Corso. “The Economics of Feeding Processed Food Waste to Swine”.
The SHPA does not apply to food waste fed to animals other than pigs. However, the Bovine Spongiform Encephalopathy (BSE) regulation, Animal Proteins Prohibited in Ruminant Feed 1998, places regulations on food plate waste fed to ruminants, a category which includes livestock like cattle and sheep. Like the SHPA, the BSE regulation also requires heat processing, but has fewer restrictions on what is acceptable. The BSE regulation heat treatment includes extrusion processes for an ambiguous, extended period of time, and pelleting. States also can control animal feed through the Association of American Feed Control Officials (AAFCO). These state laws can further specify terms of food waste processing or even ban it within the state (McChesney). Despite these laws, Spinelli and Corso point out that food waste feeders exist across the country in states like Texas, Florida, Arkansas, North Carolina and New Jersey.\footnote{Spinelli, Felix J., and Barbara Corso. “The Economics of Feeding Processes Food Waste to Swine”}

From an animal nutrition perspective, Westendorf and Myer explain that food waste may contain low levels of dry matter (DM). Dry matter is essential because it contains many of the nutrients that pigs get from food. Thus, pigs fed food waste may require more food intake in order to gain weight. On the other hand, Westendorf and Myer point to a study done in 1995 in New Jersey that found essential amino acids and other nutrients at acceptable levels for swine consumption in food waste. However in the study there was great variability within the contents of the food waste and the average dry matter content was low, recorded at about 27%. This made it difficult to predict how much feed the pigs would consume per day. However when the food waste was supplemented with corn or soybean meal, many of these negative results disappeared. The authors also point out that other research has shown that there are no significant differences in human preference for pigs fed food waste versus those fed commercial feed.\footnote{Westendorf, Michael L., and R. O. Myer. Feeding Food Wastes to Swine. The University of Florida Institute of Food and Agricultural Sciences Extension, n.d. Web.}

In order to analyze food waste as animal feed in the United States, Spinelli and Corso carried out a cost-benefit analysis. They begin by outlining the benefits. Waste disposal savings provide, according to Spinelli and Corso, the biggest benefit. They define this saving as the value gained by not sending the food waste to landfills, which have a limited capacity. Numerically, this value is the difference between the fee food waste creators pay to landfills to take the waste minus the fee they would pay to farmers or other processors multiplied by the amount of food waste produced. The other benefit outlined in this essay is the farmers’ saving on feed cost. If the farmers use food waste as feed, they do not have to purchase as much, if any, commercial feed. This number can be challenging to find because of the great variety of nutrient and DM content in food waste feed. Some food waste can be high in nutrition and low in moisture, allowing farmers to use less feed for more weight gain, while other waste can be high in moisture with little nutrition, requiring a great deal of food waste in order for the pigs to gain weight.\footnote{Spinelli, Felix J., and Barbara Corso. “The Economics of Feeding Processes Food Waste to Swine”}

All of the costs that Spinelli and Corso analyzed are either direct costs or negative impacts of using food waste for feed. The authors begin by discussing extra handling costs. They assume that semi-solid food material is moved from the location where it is created to where it will be processed and/or used. Moving and storing the unusual solution requires special equipment and sophisticated refrigeration systems. Since this equipment is uncommon and complex, it is costly. The authors next discuss feeding inefficiencies related to food waste. Food waste is less efficient as feed than the commercial blend. According to Spinelli and Corso, pigs that consume food waste must be fed for two months more than pigs that consume commercial food. This creates extra, direct costs for the farmers, as they have to care for the animals for
longer, as well as opportunity costs, as they are able to produce fewer animals. Also, feeding
swine food waste creates new opportunities for the pigs to contract diseases. Spinelli and Corso
believe that this could: create sudden drop in output of a farm; require extra money for
sanitation; require extra licensing fees for the farmer; and require inspections by federal
agencies.123

Spinelli and Corso then compare the costs and benefits faced by society, the farmers, or
the producers, and the economy overall to estimate the impact of feeding swine food waste. (See
Figure A). In all examples, the positive returns greatly outweigh the negative costs. The positive
returns for the farmer are less than for society, however in both cases the benefits are greater than
the costs. Overall, for every $1 of costs, there are $1.70 of benefits.124

While Spinelli and Corso provide a strong economic argument for recycling food waste into
swine feed, they ignore many factors. For example, they fail to consider the land that is used to
produce commercial feed. If farmers move away from commercial feed and towards food waste-
based feed, then less land will be required to grow the grains that make up the commercial mix.
This will have a positive impact on the environment as less fuel and pesticides are required to
grow commercial feed. However at the same time, this could have a negative impact on farmers
and other producers of commercial feed. With a decreasing demand, many commercial feed
producers could lose their jobs as companies go out of business.

Along with leaving out both costs and benefits, Spinelli and Corso also left out elements of
the costs and benefits they did analyze. For example, they ignored the positive environmental
impacts of diverting food waste from landfill, like reduced methane production. Also, while they
did briefly mention that handling costs depend on fuel prices, they did not completely examine
the variability of fuel prices or the environmental impact of using that fuel. Additionally, in their
discussion of disease, they forget about the potential for humans to contract the diseases that pigs
may get from consuming food waste. If Spinelli and Corso did account for all of these factors,
their cost benefit analysis would be different.

Turning food waste into animal feed comes with challenges, but it also provides
overwhelming benefits. Therefore, the University of Pennsylvania should consider turning its
dining hall food waste into animal feed. The University already composts the plate waste that
students dump into bins and should begin to donate some of its other wasted food to reduce local
hunger. However there is food that never touches students’ plates but that cannot be donated
because it has already been set out at the serving station. The University should partner with a
local farm in order to use this food waste for swine feed.

Penn would not be the first university in the region to undertake such an endeavor.
Rutgers University in New Brunswick, New Jersey is home to one of the largest student dining
operations in the country. Each year, Rutgers serves over 3.3 million meals and caters over 5,000
events. Since 1960, Rutgers has partnered with Pinter’s Farm, located only 15 miles away from
the campus. Pinter’s Farm uses 1.125 tons of the processed food waste per day to feed its pigs
and cows.125

In order to process the food waste from the dining halls, workers scrape the trays from
the busing station into a trough. The trough then moves the food into pulper machines. The

123 Ibid.
124 Ibid.
125 United States of America. Environmental Protection Agency. Feeding Animals—The Business Solution to Food
pulverized the food, removing water and reducing the food’s volume by 80%. The processed food waste is then put into barrels and refrigerated until the farmer picks it up.¹²⁶

Like in Spinelli and Corso’s economic analysis, the benefits of Rutgers’ food waste to animal feed program greatly outweigh the costs. Rutgers University incurred costs, such as purchasing the pulper machines, a one-time investment of $45,000 per machine, maintenance fees for the pulper machines, about $500 per year, and the energy costs associated with running the pulper machines and refrigeration system. Rutgers then pays Pinter’s Farm to pick up the processed food waste, a cost of about $30 per ton of food waste. However if Rutgers did not send the food waste to the farm, it would pay $60 per ton to send it to a landfill. Besides the money saved from not sending the food to a landfill, Rutgers also decreased the labor and storage costs related to waste management. Furthermore, Rutgers avoids methane production, which occurs in landfills, and avoids using water and land to produce unnecessary commercial animal feed. In total, in 2007 Rutgers avoided $100,000 in hauling costs, while simultaneously lessening its impact on the environment.¹²⁷

In implementing its own program, Penn would be able to use Rutgers as a model. An opponent might point out that Rutgers University and the University of Pennsylvania are in different states, thus subject to different laws. While this is true, the state of Pennsylvania does permit garbage feeding to swine.¹²⁸ However the University would have to abide by Pennsylvania laws. The University would have to obtain a Commercial Animal Feed License from the Department of Agriculture assuming that “payment, barter or exchange of services with farms or other processors are provided.”¹²⁹ Pennsylvania law would also require that the University obtain a General Permit for the Processing of Food Waste from the Pennsylvania Department of Environmental Protection’s Bureau of Waste Management. The University would further have to ensure that it meets the requirements of the federal SHPA. It is important that the University meet all of these requirements because “the Pennsylvania Department of Environmental Protection and Department of Agriculture will hold a retailer legally responsible as the generator of the food waste for non-compliance with regulations.”¹³⁰

The University of Pennsylvania does have a School of Veterinary Medicine that raises animals including pigs, making a partnership between Penn’s dining halls and Penn Vet possible. Another option is for the University to partner with local farms. According to Catherine Brinkley, a Ph.D. student at Penn Vet, there are local farms that already take food waste from other sources such as pieces of cocoa from Hershey’s chocolate factory as well as spent brewer's grains,¹³¹ indicating that local farmers already understand how to use food waste as animal feed. Therefore it seems feasible that the University could identify a partner farm.

Overall, a food waste to animal feed program at the University of Pennsylvania could be a success. Such a program would lessen Penn’s environmental impact and save the University money. While opponents may point to high costs, potential legal ramifications and key differences between Penn and Rutgers, each one of these problems can be solved.

¹²⁶ Ibid.
¹²⁷ Ibid.
¹³⁰ Ibid.
¹³¹ Brinkley, Catherine. "Re: Quick Question on Partnership." Message to Steven Finn. 1 Nov. 2013. E-mail.
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<tr>
<th>Item</th>
<th>New Jersey Tipping fee of: $50/ton</th>
<th>Florida Tipping fee of: $60/ton</th>
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* Items not affected by changes in the level of tipping fees.

Figure A

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Appendix I: Activities to Tackle Food Waste at Other Colleges

*Clean your plate campaign – To see an example, please see St. Olaf’s Clean Your Plate Campaign group: https://www.facebook.com/CleanPlateCampaignStOlafCollege

*Kitchen tours – It is possible to organize tours of the Bon Appétit kitchen at college campuses that take students behind the scenes to see how food is produced and how waste is handled. Usually Bon Appétit spends a lot of time talking to students about waste sustainability on these tours.

*Donation challenge – Work with dining services to create a display in the café that shows the amount of food wasted each day or each week on campus. Use large dry good bags of rice or beans to show how much is wasted and then issue a challenge to the student body that however much they are able to reduce in waste in the café that week (or month), the dining hall will donate that amount to the local food bank.

*Personal waste challenge – Students at Whitman College challenged their peers to spend a week carrying the waste they produced in a day in clear plastic bags. They had to keep their waste with them and could see it pile up.

*Trayless campaign – If your campus still has trays, you could lead a campaign to go trayless. It has been proven that when trays are taken away from the dining hall consumer waste is often cut in half.

*Speaker series and readings – American Wasteland by Jonathan Bloom is a good book to introduce people to the problems with waste and Dana Gunders NRDC report on food waste is also a good one.