

The Last Food Mile: Conference Summary



December 8 and 9, 2014, Philadelphia, PA

A 2014 [report](#) by the Economic Research Service of the USDA revealed that 31% - or 133 *billion* pounds – of the available food supply at the retail and consumer levels went uneaten by Americans in 2010. Such a vast amount of waste is particularly difficult to accept given that roughly one in six Americans experience food insecurity, and that inadequate nutrition is leading to a serious increase in obesity and diet-related illness. Further, food waste involves waste of all associated resource inputs, and it has serious negative impacts on the environment in terms of air and water pollution.

Food loss and waste occurs for myriad reasons at all levels of the food supply chain in the US, from the grower to the manufacturer to the retailer and to the consumer (i.e. from field to fork). *The Last Food Mile Conference* was organized to bring multi-disciplinary thought leaders together in an intensive, two-day format to discuss the amount and causes of food wastage at each stage, the barriers to implementing change, the multiple opportunities in excess food, lessons from current efforts to reduce wastage and how to leverage them, and how to lead behavior change for long-term solutions.

Day One:

In her opening keynote remarks, **Katherine Gajewski** of the Mayor's Office of Sustainability noted that any initiative involving food is complex because "food is anywhere and everywhere at the same time" and involves bringing multiple stakeholders with different priorities together.

With the world population set to hit 9 billion by 2050, we will have to overcome that complexity.

As **Ken Cassman** of the University of Nebraska noted thereafter, meeting the escalating global demand for food and saving the environment at the same time is humanity's greatest challenge. With the rate of growth of crop yields well below expected demand for food, we can expect continued clearing of land for food production – with significant environmental downside – if we continue to operate as we do today. We have a great need, and opportunity, to reduce global demand for food by reducing food waste – but (ominously) we are not nearly on track to do so.

As **Barbara Ekwall** of FAO noted, by 2050 nearly 70% of the world's population will live in cities – and to feed that world we will need to increase staple food production by 60%. The fact that we have such vast food loss and waste indicates that the food system is not functioning properly now, and we cannot simply assume that we can meet future food needs by pressing more land into service as productive land and associated resources are limited.

In the US alone, the 133 billion pounds of food wasted annually equates to an economic value of \$161 billion, not to mention over 1,200 lost calories per person per day. As **Jean Buzby** of USDA noted, reducing food loss and waste is "the low hanging fruit" in terms of feeding hungry people.

In our first panel, we covered food loss and waste across the food industry with perspectives from agricultural production, food manufacturing, retailing, and packaging. We sought to investigate how much wastage is being generated, where it occurs and why, and what reduction measures are being implemented to combat it.

David Masser described multiple efforts by Sterman Masser Potato Farms to reduce waste, driven by a commitment and a sense of responsibility to make the most of their land. To start, disease-resistant varieties are planted on well-drained ground. The company uses GPS systems for efficiency, and has invested in technology to reduce damage and waste in production as well as maintaining the soil (residual dirt from potatoes is returned to the soil). Environmentally-controlled facilities slow product deterioration, and an alternative product (potato flakes) is produced from off-grade potatoes that do not meet retail specifications. Peelings are collected and redirected for animal feed (up to ten million pounds per year). Sterman Masser's "no potato left behind" mindset has clear financial and environmental benefit and is a way of thinking that can be applied in other organizations.

From the manufacturer's standpoint, **Dave Stangis** of Campbell Soup described how reducing food waste fits with the company's goals of improving the health of people in the community and reducing their environmental impact. Noting that "if you are a manufacturer, food waste is bad business," he described the company's efforts to minimize waste in production, donate excess for local groups in need, and redirect portions of food scraps for animal feed as well as composting. He also described Campbell's "Just Peachy Salsa" effort, a partnership with a local food bank in which hundreds of thousands of pounds of "imperfect" peaches that would otherwise go to waste are turned into salsa by company volunteers. The salsa is bottled, labeled, and given to the food bank so that it can be sold for a significant income stream.

Jihad Rizkallah of Ahold USA (parent of Giant Food and Stop & Shop stores) discussed numerous efforts to reduce food waste as part of the company's commitment to Responsible Retailing and being a better neighbor. Ahold USA considers all aspects of the EPA's Food Recovery Hierarchy, and in 2013 the company prevented 118 million lbs. of organic waste from going to the landfill through source reduction, recycling, or repurposing efforts. Ahold offers reduced pricing on imperfect fruit and day-old bread, converts food items into other products (ex. blemished fruit for cut-fruit and salad bar offerings, rotisserie chickens for chicken salad, unsold pre-sliced meats and cheese for deli sandwiches), donates excess meat (over three million lbs. in 2013), diverts non-consumable food for animal feed and energy production, and is piloting frozen, private label deli, dairy, and juice products for additional food donations.

Rizkallah also pointed out many of the challenges to reducing food waste facing retailers, including managing customer expectations regarding fully-stocked shelves at all times, resolving confusion over sell-by dates, extending shelf life through packaging, and changing consumer behavior regarding portion sizes and leftover usage.

Yasmin Siddiqi of DuPont echoed earlier comments regarding the challenge of feeding an increasingly affluent, rising population, and noted that feeding the world is a moral, political, and economic

imperative. She discussed how packaging innovations can reduce food waste by extending shelf life while also protecting food products and controlling portion sizes.

Our lunch keynote speaker, **Robert Giegengack**, linked water and energy issues to the challenge of feeding a rapidly rising population. One key takeaway included the idea that all water resources are renewable, although we cannot deplete groundwater supplies faster than they can be replaced. Another takeaway was that on all continents, the amount of cropland per capita has been declining. A third involved the large amount of nitrogen that we waste, which causes dead zones in water bodies that are growing.

Our second panel focused on Consumer issues, investigating the characteristics of food waste in restaurants and homes, the contributing factors to that waste, the effectiveness of interventions, and ways in which food waste can be accurately measured.

We began with a discussion of food waste in restaurants. **Laura Abshire** of the National Restaurant Association noted that the public is increasingly concerned about food waste and that there is growing recognition of the need to put food waste to higher value use. She noted that laws banning organics from landfills are emerging, although the infrastructure to support composting is lagging. She also emphasized the importance of showing the business case for food waste reduction along with the environmental and social benefits.

Lessons from the *Waste Resources Action Programme* (WRAP) were also covered, with **Tom Quested**, author of several reports on food waste in the UK, participating via Skype. Quested discussed efforts to quantify, understand, and reduce household food waste, noting that about two-thirds of food waste in the UK goes to landfill for multiple reasons (it is not used in time, individuals are served too much, prepared quantities are too large, taste preferences/fussy eating, etc.). Understanding why food waste occurs in the home is critical, followed by taking steps to prevent it (raising awareness, clearing date label confusion, use of promotions to sell food nearing its shelf life, etc.). He pointed out the value of having robust data, as well as partners with strong reach, and the recognition that consumer change in this area requires concerted effort. WRAP is a partner in the European Commission's FUSION project, which seeks a 50% reduction in food waste on a 2007 baseline by 2020.

Jonathan Bloom, author of *American Wasteland*, noted several key issues leading to food waste among US consumers. Chief among these is the issue of abundance – many consumers are surrounded by food everywhere which leads to a general devaluing attitude toward it. Next is the concept of beauty. US consumers expect blemish-free produce of perfect size and shape. Cost is another factor. We spend a declining amount on food in percentage terms, we expect it to be inexpensive, and we are accustomed to large portions. We've also lost a significant amount of knowledge about food, and as a result we discard it prematurely or fail to prepare leftovers in creative ways for consumption.

Consumers can take numerous steps to reduce food waste, such as planning before shopping, making lists, buying imperfect produce, de-cluttering refrigerators, and being wise about portion sizes. In short, we need to re-connect with our food. An educational campaign is needed to promote behavior change and make food waste akin to violating social norms.

We viewed ways to reduce waste in food service operations through automated food waste tracking systems. **Andrew Shakman** of LeanPath discussed the notion of taking lessons from the manufacturing sector and using data to drive change. He noted that we first need to make food waste a “safe” discussion topic with chefs, and that we need a culture “reset” in which we are open and transparent about the existence of food waste and the need to reduce it. Shakman cited the need to use data to measure food waste in food service kitchens in a continuous, ongoing process. He also stressed the need to make measurement easy, with timely data on food waste flowing to managers without the need for them to work hard at getting it. LeanPath’s tracking system flows data to decision-makers, who can then engage their front-line personnel in a timely manner. Shakman also noted that with all of the current attention devoted to food sourcing, it is a natural progression for consumers to expect that restaurants and food service organizations will also act responsibly in terms of handling their excess food.

We ended day one with a special session on food recovery efforts from three perspectives. **Shengkui Cheng** brought a global perspective, detailing cultural issues that impact consumer food waste in China. **Gary Oppenheimer** of AmpleHarvest.org discussed his innovation to match America’s gardeners with excess food to food pantries in need of it; enabling durable relationships which feed people and help the environment. **Cathy Snyder** of Rolling Harvest Food Rescue showed how the power of relationships on a small-scale can have a large impact in providing healthy produce to the food insecure.

Bon Appetit helped to drive home the value of many of the day’s topics with an outstanding display of stem-to-root cooking; demonstrating how their commitment to sustainability translates to innovative, delicious appetizers from atypical components.

Day Two:

We began day two with an in-depth look at food waste reduction, recovery, and recycling efforts in the US with many references to the opportunities in excess food covered by EPA’s [Food Recovery Hierarchy](#). **Steven Finn** introduced the high cost of our “culture of abundance” and suggested that Stermann Masser’s “no potato left behind” philosophy has applicability for all organizations in the food sector.

Jim Ferguson laid the groundwork by quantifying aspects of food recovery and showing the potential and complexity in using excess food and food by-products for animal feed. Elise Golan followed with an overview of the logistical difficulties involved with food and a review of USDA and EPA efforts to reduce food waste through the Food Recovery Challenge.

We looked in more detail at food recovery efforts to feed people. **Karen Hanner** described Feeding America’s efforts, which included filling over two billion meals from excess food last year (and preventing 2.5 billion pounds of food from landfill). She noted that there are billions of pounds of food available for recovery, and that Feeding America continues to work on overcoming barriers to donation (fear of liability, safety issues) and establishing partnerships (including working to increase the confidence level of retailers to donate protein and produce) to recover high-quality food for the hungry.

In terms of innovative solutions in food recovery, **Bill Clark**, former CEO of Philabundance, detailed the innovative non-profit supermarket (*Fare & Square*) that he pioneered in Chester (PA). *Fare & Square* is an attractive, fully-sustainable non-profit supermarket designed to solve the problem of a lack of access to fresh, healthy foods in a Philadelphia food desert. With capital raised to pay off the fixed costs of construction, the store is able to obtain food at low cost and in turn sell that food to residents at low prices while generating enough income to cover operating costs.

Mike Waldmann, Executive Director of the Society of Saint Andrew (SOSA) – America’s largest gleaning organization – discussed the vast amount of available excess food in the US. Giving powerful anecdotes from his experience in seeing perfectly good vegetables left in fields due to harvesting techniques, fields left unharvested due to market conditions, and truckloads of produce turned away for reasons such as lack of bar codes, he described SOSA’s logistical role in capturing a portion of that excess food and redirecting it to feed people.

In discussing SOSA’s role in advocating the need to be better stewards of our food, Waldmann pointed out the coexistence of food waste and hunger, noting that we are throwing away more than enough food to feed every man woman and child in this country. He also noted that we’ve essentially beaten hunger, although it still exists because we let it exist.

Doug Rauch, former President of Trader Joe’s and current CEO of Conscious Capitalism, echoed a prior comment about the importance of getting our terminology right. Citing the value in food, he noted that we should “flip” our wording and use the term “wasted food” rather than food waste. He also recommended avoiding the term “expiration date” as it wrongly conveys the notion that much perfectly good food is suddenly bad, or expired. Rauch noted that affordable nutrition is the biggest challenge for America, and to address it he emphasized the importance of understanding 1) the nature of hunger, 2) the fact that retail stores anchor communities, and 3) the idea that poverty is a “time” issue (the desire to save time often leads to fast, unhealthy food choices).

Rauch described his innovative concept for a store (the *Daily Table*) which seeks to obtain donations of nutritious food nearing a “sell-by” date and re-sell that food at very low prices to individuals who lack access to healthy food calories. While working to overcome barriers to his model from external stakeholders, he is focused on three fundamental questions including 1) how to serve the majority of the working poor, 2) how to provide affordable nutrition to those in food deserts, and 3) how to create a model that is sustainable and scalable. A key takeaway is that due to time and income constraints for intended consumers, *Daily Table* must offer healthy food that is competitive with junk food in order to accomplish its goal.

Claire Cummings of Bon Appetit detailed the organization’s many efforts to reduce food waste which begins with walking the fields with farmers to discuss items that can be used rather than wasted. The company educates chefs on preparation techniques to reduce waste, continually monitors food waste in its kitchens, and educates consumers on food waste as well. Bon Appetit has an “imperfectly delicious” program, and uses non-grade A fruits which might otherwise be discarded along with snout-to-tail and stem-to-root-cooking. Cooking from scratch, and in small batches, also helps to reduce waste. Excess

food is donated to pantries where possible, while other food scraps are redirected for animal feed or composting.

Cummings noted that fear of liability isn't the biggest barrier to donations, it is instead a lack of guidance and shared guidelines for donation protocols (something that EPA and USDA can improve).

Our second day also involved keynote talks on the challenges and benefits of composting from **Nora Goldstein** (Biocycle) and **Kathleen Sealey** (University of Miami). Sealey discussed lessons from her food composting research work in a uniquely constrained environment – the Bahamas. Noting the “trashy” nature of tourism, she described the challenges of limited space, high temperatures, and the high costs involved in composting in that setting. Her findings from a contained island setting have important implications for composting at scale in mainland locations.

Last, our fourth panel was designed to build on all that we had learned from the first three panels and move toward changing behavior to reduce food loss and waste. Key questions involved the types of behaviors that cause food wastage, how food marketing affects consumption, the impact of social norms and culture on consumers, and how we can intervene and alter such behavior.

Paul Rozin of UPenn started us off with a perspective on the psychological basis of food wasting behavior, noting that we have to *make it easier* for individuals to reduce food waste by incentivizing and automating such behavior – much like the national change leading to the use of seat belts in cars. Making food waste more meaningful to the average individual, and moralizing the issue, will help.

John Stanton of St. Joseph's University noted that food processing companies hate food waste more than anyone (due to the financial costs), and that “when it comes to making more money by reducing food waste, food processors will be at the front of the line” to sign up. He added that we need to keep the pressure on consumers to change behavior as the food retailers don't see themselves as leaders on food waste reduction.

Roni Neff of Johns Hopkins followed by detailing US consumer attitudes and behaviors related to food waste. Neff recapped the many benefits to reducing food waste, describing what steps industry can take now, and provided numerous messages for interventionists seeking to drive reductions in food wastage.

Nicole Civita of the University of Arkansas brought a legal perspective to our discussion, providing guidance on the Bill Emerson Good Samaritan Act (legislation designed to protect entities donating food in good faith) – noting that while very strong in terms of protecting donors it is not a panacea. She noted that fear of reputational harm exceeds the fear of liability associated with food donations, and clarified that it is not illegal to recover food from a national school food program. She also provided a number of recommendations on how to reduce food waste.

Last, we engaged local students to discuss their experiences with food waste in schools. Despite the fact that Philadelphia youth are heavily dependent on school lunch programs, and despite ongoing budget crises, much food is still wasted in our schools. For example, a 2012 [report](#) of over 400 School District of

Philadelphia employees revealed that 64% of respondents felt that over half of the food they served was thrown away. **Jarrett Stein** of the Agatston Urban Nutrition Initiative worked with middle school students to assess average food waste in a kindergarten class, which they calculated to be 36% (comprised mainly of vegetables, milk, fruit, and meat).

Further, a team of UPenn students reported on their work to assess the level of food waste in campus dining halls. Disturbingly, their study of plate waste revealed that every two students waste enough food to feed a third.

Zhengxia Dou wrapped up the conference, offering her own personal insights on food waste and highlighting key elements of data. Noting that “we all understand that wasted food is wasted money and wasted resources,” she summarized food waste and loss across the supply chain and noted that reducing food waste at the consumer stage is critical for us going forward – citing priorities such as better understanding consumer food behavior, characterizing and measuring consumer food waste, and establishing a baseline coupled with food waste reduction targets.

Conclusion: Moving Forward

We feel that the conference was inspirational to many of the participants. Feedback supports our thought that the uniqueness of the conference – a deep dive into food loss and waste in *all* aspects of the US food supply chain – was its strength.

To conclude, we are excited by the positive feedback that we received from conference attendees, and we remain energized by the atmosphere in which so many individuals were looking to have a positive impact on the issue of food waste and loss across the supply chain. We view this conference as a springboard for a great deal of work which will involve additional research, papers, partnerships, projects, informational seminars, and events. In fact, as we announced at the conference, we are already in discussion with multiple stakeholders to host a “feeding the 5K” event with Tristram Stuart and his team on the Penn campus in 2015. More details will follow.

For now, we wish to once again thank all of our sponsors and partners for their support of the conference, our conference committee members and assistants for their organizational efforts, our speakers for providing such rich educational content, and our attendees for their engagement and interest. Together, we learned much about the scope of food loss and waste across the US supply chain, the challenges that reinforce it, the many efforts underway to reduce it, and the opportunities for future focus. Together, we can build on this knowledge to change our own behavior and spark greater change in the larger food system. We have much work to do to spark this change, and we hope that you will help us lead it.

Conference Organizing Committee

Zhengxia Dou, Jim Ferguson, Steven Finn, David Galligan, Alan Kelly

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