



Stop Wasting Food

Ending Hunger by Donating Excess Garden Produce

Summary Report

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I. INTRODUCTION

Food waste is generated in virtually every sector of the food system and, if appropriately redistributed, can be part of the solution in addressing food security for individuals with poor access to adequate and healthy foods. We globally waste approximately 1.3 billion tons of food each year (FAO 2013) while a notable percentage of the world's population does not have access to adequate and nutritious foods. In the United States (US), more than one-third of all consumable food or 1 in 4 food calories is wasted and never eaten (World Resources Institute 2013). At the same time, approximately 14% of the US population is food insecure (USDA 2015) and 13% of the world population is considered undernourished (FAO 2015).

The generation of food waste is everyone's problem and calls for every individual in the food system to contribute to a solution. Food waste is the uneaten edible portion of food that is lost or thrown away in the food system during production, storage, or consumption. Each day, thousands of tons of edible and nutritious food are wasted on the farm, in home gardens, factories, and at food processing plants due to issues of lack of distribution and storage. Foodservice enterprises including supermarkets, restaurants, dining halls, hospitals, prisons, and schools generate food waste because of large portion sizes, expiration or sell by date regulations, and challenges in menu forecasting. Consumers and households waste food from uneaten leftovers, issues in meal planning, and spoiled food.

Food waste is a pressing problem for sustainability in the United States and globally with negative implications for food security, the environment, and socio-economic factors. From a food security perspective, food waste represents a dietary loss of 1,249 calories per capita per day (Buzby et al. 2014), along with a loss of nutrients. We can feed more people with nutritious diets if we waste less food. Environmentally, food waste has a detrimental ecological footprint with consequences for water, land use, biodiversity, and climate (FAO 2013). Food waste takes up space at our landfills, utilizes energy and resources to process, and also produces the green house gas methane released to the atmosphere as it decomposes. The energy utilized in producing food including labor is lost with the generation of food waste. Economically, food waste represents a loss of approximately \$161.6 billion annually (Buzby et al. 2014) including the cost of the lost food resources and the cost of trash disposal. We are essentially throwing away resources when we waste food.

II. FOOD WASTE SOLUTIONS

In recognition of the need to address food waste, major international and national organizations have initiated campaigns to reduce food waste. For example, the United Nations Sustainable Development Goals (2016) call for the world to reduce food waste by 50% per capita by 2030. In the US, the US Department of Agriculture and US Environmental Protection Agency have partnered to set the nation's first food waste reduction goals through the Food Waste Challenge to reduce the amount of food wasted by 50 percent by 2030 which they seek to achieve through a series of programs and policies (USDA 2015).

Numerous strategies exist as well as are being created to better manage food resources from farm to table to prevent food waste. Some restaurants are finding innovative ways to use edible “ugly” produce in recipes that hide the flaws of fruit and vegetables such as soup. Stakeholders across the food system are composting rotting or leftover food into nutrient rich soil to cultivate new food. New tools have emerged to help households better plan meals in efforts to save costs and reduce food waste. Organizations such as farms, supermarkets, and restaurants, have engaged in donating extra food to food banks and pantries. Composting food scraps is used to create nutrient rich soil. All of these efforts help to redirect food waste, and the organic matter that it represents, away from the landfill.

AmpleHarvest.org Enabling Donation of Produce from America's Gardeners to Food Pantries:

Food donations to food banks and pantries have typically involved food enterprises such as farms, supermarkets, restaurants and community food drives and have not generally involved fresh food from gardeners. However, there are over 42 million home and community gardeners in the US (National Gardening Association 2014) that generate an abundance of



fresh fruits and vegetables; some of this produce is ultimately wasted. Until recently, there were no networks for these individuals to donate extra produce not utilized or given away to family and friends.

In recognition of this need, the non-profit organization AmpleHarvest.org was launched in 2009 with the goal of creating a new avenue via technology to redirect excess fruits and vegetables grown by America's gardeners to nearby food pantries. Specifically, AmpleHarvest.org helps eliminate food waste and hunger in communities around the United States through both education and awareness programs to help gardeners learn how they can donate their food as well as a web-based platform that links home and

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community gardeners to nearby pantries that are accepting fresh garden produce. AmpleHarvest.org maintains a free, searchable, online registry of opt-in food pantries, soup kitchens, and other food distribution agencies in all 50 states nationwide in order to enable home and community gardeners to find a nearby location to donate their excess garden bounty.

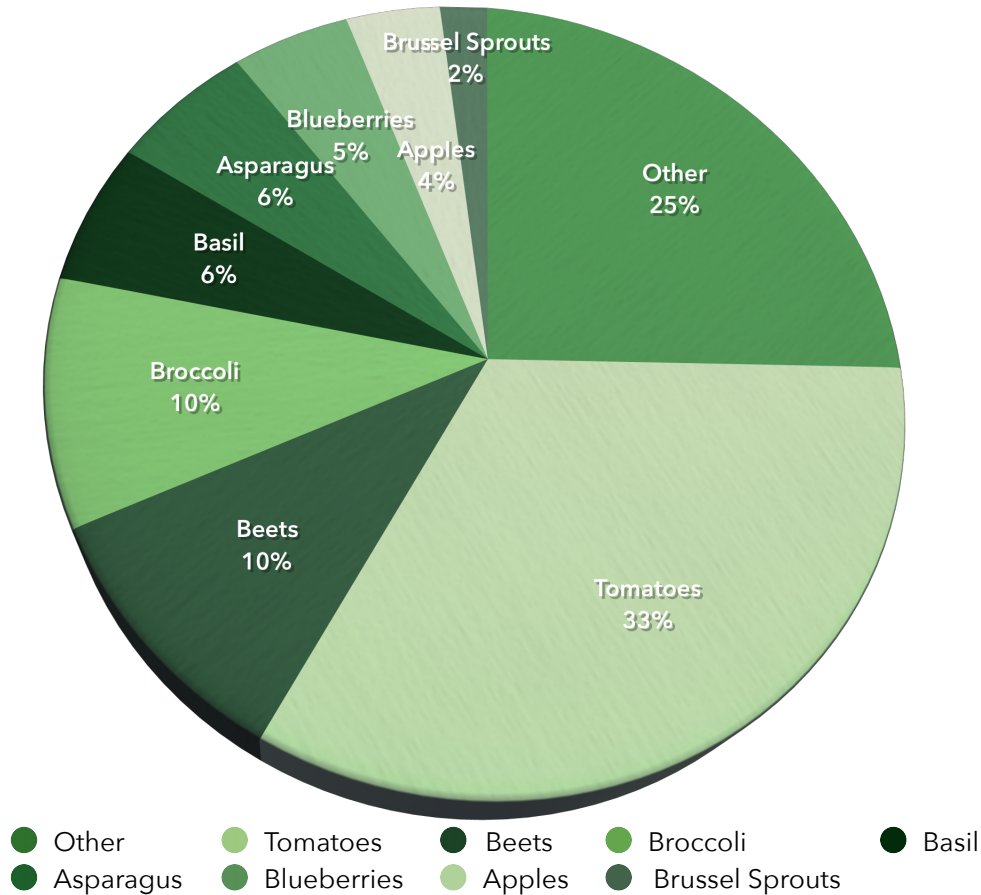
While there are many sectors in the food system that generate food waste, AmpleHarvest.org focuses on the home and community gardener segment, a traditionally untapped resource in regards to food waste strategies. To date, AmpleHarvest.org has provided opportunities for America's 42 million home and community gardeners to donate excess fresh food to nearly 8,000 of America's 33,500 pantries. As the benefits of consuming fresh fruits and vegetables for human health become more recognized, food pantries are increasingly demanding fresh produce donations for providing food insecure households with nutritious foods.

III. SURVEY ON EXCESS FOOD GROWN IN AMERICA'S GARDENS

Survey Purpose and Methods: Cisco Systems collaborated with AmpleHarvest.org on carrying out a survey with home and community gardeners in the US to evaluate the potential impact that local gardeners can have by donating excess produce to local food pantries. The objectives of the survey were to determine the amount of excess food that home and community gardeners grow beyond what they can use and to use this information to assess the potential impact of connecting gardeners with food pantries. The survey instrument included multiple choice and open-ended questions regarding respondents' produce gardens and behavior with surpluses including foods grown, size of garden plots, years of gardening, approximate amount of excess food grown and harvested, knowledge of whether local food pantries accept donations, food pantry donation history and practices, and perceptions on willingness to grow more food. The survey was administered online via the AmpleHarvest.org website twice including in May 2015 and May 2016 with questions regarding the previous growing season. The online survey tool was distributed through three means to elicit responses from gardeners including the following: (1) The 50 state Master Gardener organizations reached out across their networks; (2) AmpleHarvest.org social media and; (3) other bloggers and networks in the food and gardening realm. Results from each year's survey were separately analyzed and compared. Here, we focus our discussion on the most recent survey results followed by a brief comparison of survey data from the two survey years.

2016 Survey Results: A total of 1,926 gardeners from all over the US responded to the 2016 survey on the AmpleHarvest.org website. Of these respondents, 19.5% had heard of the activities of AmpleHarvest.org prior to the survey. The majority of respondents, 61.5%, had grown food in their garden prior to 2009 while 27.7% of

Produce Grown by AmpleHarvest.Org Survey Respondents, 2016



respondents starting gardening after 2009. These findings highlight how there is a stream of new home and community gardeners entering food production in the US. While the majority of gardeners grow food in suburban (39.2%) and rural (37.2%), a notable percentage also grows food in urban settings (23.7%). Respondents represented a mixed age group with 48% being from 46 - 65 years old, 24.7% being from 66 - 85 years old, and 21.4% being from 26 - 45 years old. The most prevalent produce cultivated by the home and community gardeners taking the survey were tomatoes (grown by 34% of producers), beets (10%), broccoli (8%), basil (6%), and asparagus (6%).

An increasing number of gardeners have started to donate food since 2009 when AmpleHarvest.org was founded. Only 8.6% of gardeners reported donating food before 2009 and 23.1% of gardeners reported donating food since 2009.

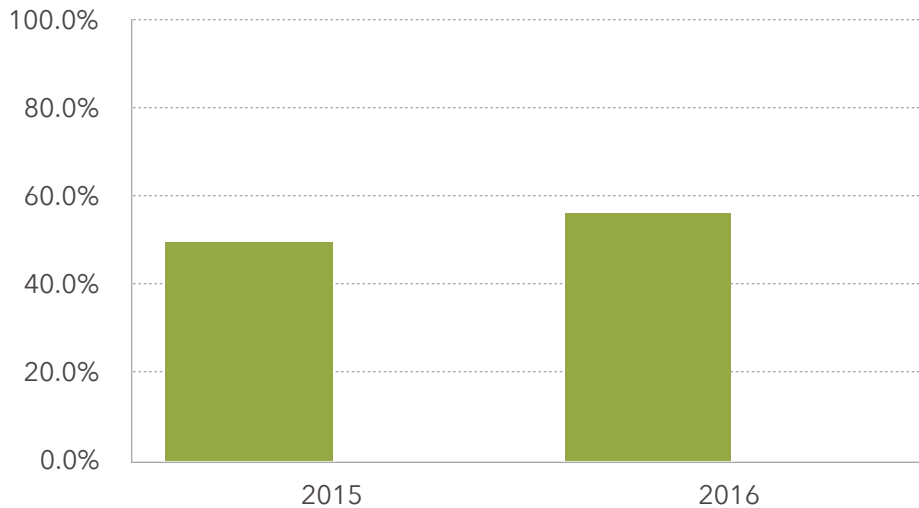
Findings indicate that an increasing number of gardeners have started to donate food since 2009 when AmpleHarvest.org was founded. Specifically, only 8.6% of gardeners reported donating food before 2009 and 23.1% of gardeners reported donating food since 2009. A total of 83% of all respondents, or 4 out of 5 gardeners, reported that they were willing to donate their excess garden bounty if they knew that a local food pantry welcomed their excess.

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A total of 56% of respondents reported that they were both willing *and* able to contribute their excess garden bounty to a local food pantry. Specifically, the home and community gardeners that participated in the survey reported that they are willing to donate excess produce from their gardens totaling 337,625 pounds annually, or an average 273 pounds per person annually based on the 2015 growing season. For the approximately 42 million home and community gardeners in the US, excess produce donations could add up to 11.47 billion pounds annually. At an average estimated price of \$2.41 per pound of fresh produce, these excess produce donations represent a value of \$27.63 billion. In addition, using the estimate that individuals should consume 415 pounds of vegetables per year, the excess produce that can be donated by gardeners in the US annually has the potential to provide the annual vegetable recommendations of 27,638,554 people and thereby addressing a notable percentage of the food insecure population in the nation.

For the approximately 42 million home and community gardeners in the US, excess produce donations could add up to 11.47 billion pounds annually. At an average estimated price of \$2.41 per pound of fresh produce, these excess produce donations represent a value of \$27.63 billion.

Percentage of Gardeners Willing and Able to Contribute to a Local Food Pantry, AmpleHarvest.org Survey 2015 and 2016



In addition to the majority of gardeners being willing and able to donate excess garden produce, 49.3% reported that they would grow more produce explicitly to donate if they knew there was a local pantry that would accept it and they had the extra space. 30.2% of respondents indicated that they do not have more space to grow additional produce. Only 9.7% of respondents stated that they would not grow more produce explicitly to donate if they knew there was a local pantry that would accept it and they had the extra space. Overall, the issues in the US of greatest concern to the respondents are the environment (22%), hunger (22%), and food waste (21%).

Comparison of 2016 and 2015 Survey Results: A comparison of 2016 and 2015 survey data shows similar findings during both years that the survey was administered, thereby further validating the findings from the 2016 survey. A total of 666 gardeners from around the US responded to the 2015 survey on the AmpleHarvest.org website. Of these respondents in 2015, a total of 49.4% were both willing *and* able to contribute to a local food pantry (compared to 56% respondents in 2016). Respondents that participated in the 2015 survey reported that they are willing to donate excess produce from their gardens totaling an average 277 pounds per person annually based on the 2014 growing season; these findings are very similar to the 2016 findings of an average of 273 pounds per person annually based on the 2015 growing season.

Survey Result Implications and Broader Opportunities: Results of the survey highlight the potential of distributing food from America's gardeners to food pantries to mitigate both food waste as well as food insecurity. Donating excess produce from home gardens and community gardens serves to redirect food waste from the landfill and thereby mitigate the negative environmental and economic externalities of food waste. The excess food waste that can be donated by gardeners in the US annually has the potential to provide the annual vegetable recommendations of millions of hungry people nationwide representing a notable percentage of the food insecure population in the nation. Donating a diversity of foods to food pantries helps support food security and nutrition outcomes of households with poor access to nutritious foods while further supporting healthcare costs. Furthermore, by connecting gardeners to their local pantries, food waste travels a relatively short distance meaning that it has a reduced ecological footprint while staying fresher with a longer shelf life. Based on our findings, we estimate that upwards of a few million home and community gardeners presently participate in donating excess food to food pantries. However, there are still millions of more gardeners that throw away excess food that could be nutrition for hungry families in the US. Thus, we support an expansion of food pantries to participate in the network of accepting local fresh produce to feed America's hungry families with nutritious foods while reducing food waste. We further support awareness campaigns for home and community gardeners on food waste strategies including donating garden produce as well as educational programming for consumers of food pantries on how to prepare fresh produce and time management for cooking fresh produce. In this way, donating excess garden produce can help end food waste and hunger.

We support an expansion of food pantries to participate in the network of accepting local fresh produce to feed America's hungry families with nutritious foods while reducing food waste.

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