



ARTIFACTS

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Old Habits Out and New Habits In: The New Way to Waste Food

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Throughout my life I have had my fair share of wasteful habits. I have thrown food out because I thought it looked funky, to simply being too

full and not wanting to eat another bite. In the moment, I never stop to think about the impact it may have on the world. However, try to imagine

everybody wasting just a little bit every time they have a meal. We as humans don't realize how wasteful we are at times. We have the expectation that food will always be readily available to us and, when we are done with it all, a trash truck will come and haul away our unwanted scraps. Every year, billions of pounds of food are discarded, and that number is rising. In the United States alone, 40% of all food produced for human consumption goes uneaten every year, which converts to \$165 billion in wasted revenue. According to the article, Environmental Issues, if this amount of wasted food were reduced by 15% then it would be the equivalent of feeding an additional 25 million Americans every year (Environmental Issues). To give another example, the average American throws out 20 pounds of food every month. With a population of 320 million citizens, that is the equivalent of wasting 640 million pounds of food a month. To give a more visual example, Americans waste enough food everyday to fill the Rose Bowl football stadium. All of this could be put to better use, rather than rotting in some landfill.

What kind of food waste alternatives exist that can help better our future? For years, food has been tossed out for various reasons. Whether it reaches an expiration date or someone has the undesirable thought of eating something different, food is wasted at will. That same wasteful mindset continues today, only on a scale far more staggering. It has to stop. Not only is wasting food irresponsible, but it is detrimental to the economy, to those who are in need, to the environment, and ultimately to everyone who lives on earth. Fortunately, we can reduce and possibly eliminate the issue of food waste. Alternatives such as making donations to food pantries, developing animal feed, and producing biofuel give humanity the tools needed to not only reduce food waste, but also provide safe and reliable solutions for everyone. Food waste has become a serious issue due to the growing environmental concerns and increasing world population, but it can be reduced and eliminated by implementing simple alternatives such

as donations, food to animal feed, and bio refining. By implementing such alternatives, the world will experience more economic stability, less environmental issues, and a healthier and brighter future to come.

Food is disposed of in three primary ways: dumping, recycling, and burning. Of the three, dumping is the most common but has the worst impact of them all (Sobal and Nelson). Wasting food is wrong for many reasons. For starters, millions of people all over the world go to hungry because of their lack of income and ability to afford meals. Secondly, these wasteful habits are also costing individuals and society lots of money in the long run. Grocery stores lose revenue by tossing out food that is misshaped or damaged in the handling and transportation process (Jacobs).

Consumers throw away their own food that has passed its best used by date or because they don't like how it looks. Producers will even go as far as throwing out misshaped fruits and vegetables out of fear that their reputation will be damaged (Agriculture, Energy and Climate Change).

However, of all the problems associated with food waste, few can compete with the topic of climate change. Global warming has received lots attention in the past 20 years, and can be caused by the accumulation and production of green house gases: Hydrogen, Methane, Carbon Dioxide, Carbon Monoxide, and more (Feld). When food scraps are sent to landfills, they are left to rot. During the rotting stage, food undergoes the process known as decomposition. This process can be beneficial when used properly because it allows the food and its nutrients to be returned into the soil to be used for future growth. However, it can also be detrimental in the case of landfills where food is not returned to the soil and simply emits green house gases (Segrè and Gaiani). These problems do not have to persist any longer if measures are taken to decrease the amount of food waste. Of all the possible alternatives to food waste, I will focus on three in particular: Food waste to bio-oil, food waste to feedstock, and donations to food pantries for those in need.

To kick things off, 40% of all food produced in America is thrown away every year. It is also anticipated that approximately 795 million individuals go hungry every day (Environmental Issues). If even a small fraction of food waste could be donated rather than thrown out, then the whole issue of world hunger could quite possibly be solved. Fortunately, there are organizations that specialize in providing food for the homeless, hungry, and less fortunate. Local food pantries exist all across our country that tailor to the needs of the less fortunate, while providing a valuable service at little to no cost for the consumer. One organization in particular is the Food Waste Reduction Alliance (FWRA). The group was founded in 2011 with the purpose of eliminating food waste through donations to food banks. Currently, more than 30 companies comprise the group and they continue to grow. If large corporations can band together to combat food waste and hunger related issues, then individuals can do the same. One great way of doing this is to go through a local parish and partner with grocery stores in local towns. Talk with the managers about the foods that are nearing their best by or expiration date and see if they would be willing to donate the items rather than pitching them. Constructive ideas such as these spread awareness about food waste, can lead to positive local advertising, and assist the community members who are in desperate need.

Naysayers may argue that grocery stores would never agree to such a proposal due to the loss in revenue they would experience. Additionally, store managers may refrain from donating perishable items due to the fear of being sued by consumers who come down sick. The hole in the first argument is that, in order to generate revenue, the store must make a sale. Grocery stores wouldn't have to miss out on lost revenue due to the expiration date already having passed. When an item's expiration date passes, grocery stores will normally toss it out to make room for fresher items. The so called expiration date doesn't mean that the food is inedible; it is more of a guideline to indicate the date of maximum freshness. Many

stores have titles called “best used by” and “enjoy by”, none of which signify the food is unfit for human consumption. An alternative to throwing the food away is to donate it to a local food bank or food pantry where it can be given away to those in need. This would reduce the amount of food waste being generated and reduce the total number of individuals who go hungry every day. Coming back to the argument of being sued due to food related illness, the Good Samaritan Act protects people who give reasonable assistance to those in need, or those they believe are in peril. With that being said, stores should have no reason not to donate food that would originally be thrown out.

A second food waste alternative is the idea of creating compost or animal feedstock from recyclable food waste. Both ideas help to limit the amount of food waste generated while providing a necessary service for the food production industry. Locations that are confined for space, such as Hawai'i, have begun exercising programs that focus on converting food scraps into compost to be used for farm lands (Howell). In certain manufacturing facilities, food scraps, seeds, and skins are collected to be used as animal feed (Silva). Grocery stores could also implement this alternative for foods nearing their expiration dates. Rather than throwing out this food, use it as an animal feedstock of some sort. Grains and vegetables are filled with nutrients necessary for humans and animals alike. When food is deemed unfit for human consumption, it can be passed onto farms to benefit livestock. One example of this is the use of outdated infant formula for feedstock as seen in Michael Westendorf's book *Food Waste to Animal Feed*. Infant formula is highly regulated by the FDA due to the child's weaker immune system and inability to fight off bacteria. Therefore, when the expiration date passes, the formula must be tossed out due to the belief that it is no longer safe. However, Dr. Westendorf conducted a case study concerning outdated infant formula and the effect it had on young calves. The calves were fed the infant formula for a period of time, then had their

health effects monitored and compared to those who were not fed the formula. The results for the study indicated that no significant effects were observable within the calves, and the formula was able to be acquired at a fraction of the cost of normal feedstock (Westendorf). A solution such as this provides a safe and useful alternative to food waste while helping farmers lower their annual expenses.

Possible opposition to these solutions could come in the form of questions or statements such as: How will you implement such programs if they are not profitable? Animals already have food designed for them, so we shouldn't risk messing up the current food system. To counter the first argument of implementation, corporations could petition the government for subsidies to help start such programs. Not only are they saving costs by putting food waste to good use, they are performing an ethical and moral decision that is beneficial to the world. Secondly, studies have been conducted on animals who have been fed expired human food. As discussed in the previous paragraph. The results have indicated that no health complications have occurred and the food can be acquired at a low price. In order to use different kinds of food for this purpose, experiments should be conducted first to ensure the safety of the animal and quality of the meat. Should the results be positive, the new kind of food would then have the ability to be used as animal feedstock.

The third and final food waste alternative is one that has significant meaning to me due to its engineering relevance. Bio-refining is an emerging technology that has great potential to reduce the dependency on fossil fuels. The method in question focuses on the use of biomass, otherwise known as food waste, as a raw material to create biogas and biofuel. A study at James Cook University examined the production of biogas and biofuel from carbohydrate rich foods. Foods such as bread, rice, pastries, and corn are all considered high in carbohydrate content and could serve as a raw material for the process. The procedure called for the

raw materials to undergo chemical hydrolysis, a process that breaks the raw materials into their micro components so that they may be further processed. Upon completion of the study, the results indicated that even though biogas yields are lacking, the production levels of biofuel/bio-oil are feasible to implement on a large scale (Hao et al.). Moreover, through further optimization the process could experience even higher biofuel yields. Imagine a solution that offers the possibility of reducing food waste, thereby reducing the amount of green house gas emission, while simultaneously producing an environmentally friendly product and reducing the world's need for fossil fuels.

Some people will argue that constructing a manufacturing plant to convert biomass to biofuel would cost hundreds of millions of dollars and would not be worth the benefits. To make matters worse, they may claim that the technology is not at its full potential and inefficient at its current levels. Corporations have been figuring out how to create something out of nothing for years! If this process could be even slightly plausible, then we owe it to ourselves to attempt it. Technology has advanced over time and nothing is perfect right from the get-go. It will take time and patience, but I believe this solution could turn out to be something incredible for the world. Isn't that something worth trying? If we take money out of the equation for a second, isn't the health of our world and our future more important than the paper that we spend?

Through the years, we have taken our food system for granted due to its accessibility and simplicity. What once was acceptable as waste has grown to be a serious problem that can no longer be ignored. We are at a point where we are wasting almost half of what we produce for consumption, and that is unacceptable. However, solutions to these issues of food waste are all around us; it just takes someone with the initiative to go out and make a difference. Though it may not be realistic to believe that all of the alternatives mentioned here will be implemented, it is quite possible that

some may be used to a certain extent. Whether it is donating food items to a food bank, or converting food waste into animal feed or biofuel, something is better than nothing. Food waste will not disappear over night, but by our will power we can move closer to eliminating the wasteful habits that exist today. Thereby creating a cleaner and brighter future for ourselves and the future generations that are to come.

Reference List

“Agriculture, Energy and Climate Change.” *GRACE Communications Foundation*. N.p., July 2008. Web. 27 Feb. 2016.

<<http://www.sustainabletable.org/982/agriculture-energy-climate-change>>.

“Environmental Issues: Food and Agriculture.” *Reducing Food Waste and Losses in the U.S. Food Supply*. N.p., Aug. 2012. Web. 27 Feb. 2016.

<<http://www.nrdc.org/food/wasted-food.asp>>.

Feld, Andrew. “Best Practice and Emerging Solutions.” *The Iowa Review* 41.2 (2011): 167-70. Web. Mar. 2016.

Hao, Hoang-Tuong, Obulisamy Karthikeyan, and Kirsten Heimann. “Bio-Refining of Carbohydrate-Rich Food Waste for Biofuels.” *Energies* 8.7 (2015): 6350-364. Web.

Howell, Jordan P. “Alternative Waste Solutions for the Pacific Region: Learning from the Hawai’i Experience.” *East-West Center*, Oct. 2015.

Web. 09 Mar. 2016.

Jacobs, Harrison. "Why Grocery Stores Like Trader Joe's Throw Out So Much Perfectly Good Food." *Business Insider*. 15 Oct. 2014. Web. 08 Mar. 2016.

Segrè, Andrea, and Silvia Gaiani. *Transforming Food Waste into a Resource*. Cambridge, UK: RSC Publishing, 2012. Print.

Silva, Cristina L., Rui Costa, and Vassiliki Oreopoulou. "Food Science and Technology for a Sustainable Bioeconomy 2014." *Journal of Food Engineering* 167 (2015): 1. Web.

Sobal, Jeffery, and Mary Nelson. "Food Waste." *Encyclopedia of Food and Culture*. 63 – 68. 2003. Print.

Westendorf, Michael L. *Food Waste to Animal Feed*. Ames: Iowa State University Press, 2000. Print.

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