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In 2017, 5.9 million Americans were living in food-insecure households. While this represents almost 16% of the entire population struggling to access food, the rest is discarding almost 40 million tons of perfectly eatable food annually (Oakley, A. R., et al. 143). The amount of food that Americans are discarding is more than enough to solve food insecurity in the country effectively. Reducing food waste by only 15 percent would salvage enough food to feed more than 25 million Americans every year. Waste in households is a significant issue in the United States that needs special attention from the government and the population. This issue has numerous environmental, economic, and social consequences for both the country itself and the entire world. This paper will clearly define food waste and inform about it around the world in general and in the U.S in particular, as well as the negative impacts of food waste has. Then will examine the root causes behind the tremendous amount of food Americans waste. Finally, the paper will suggest ways to reduce that amount of waste significantly.

Food waste is defined by the United Nations Environment Program (UN Environment Program) as the food that completes the food supply chain up to a final product, in good quality and ready for consumption, but ends up not being consumed. The expression “food waste” is also used to qualify the food initially intended for human consumption but was thrown away for various reasons. Edible food is discarded at all points along the food chain: on farms and fishing boats, when being processed and distributed, in retail stores, in restaurants, and finally at home.

Every year, the world loses a significant quantity of food. Approximately 1.4 billion tons of perfectly edible food is wasted yearly around the world (FAO).

In one of his Ted Talks, Tristan Stuart, an English author, and campaigner talks about how he noticed that the food given to him to feed his pig was still suitable for humans' consumption. When he was fifteen, he bought pigs and went to the school kitchen, the local baker, and farmers to ask for food to feed them. Most of the food given to him after asking was the food intended to be thrown away. One morning when feeding his pets, he decided to eat the same food to test. He did not get sick or anything, and he realized that the food that was given to him was excellent and fresh food, yet it was being discarded.

While the world wastes about 1.4 billion tons of food yearly, the United States alone wastes 40 million tons yearly (U.S Department of Agriculture). That represents 30-40 percent of the entire U.S. food supply. In America, households are responsible for the most significant portion of food waste. ReFED, a national nonprofit dedicated to ending food loss and waste across the U.S estimates that 40 to 50 percent of food waste happens at the consumers' level. In this country, the average person wastes 238 pounds of food per year, which represents 21 percent of the food they purchase.

The increase in greenhouse emissions, municipal waste, economic waste, and food insecurity is related to the astronomical amount of food American consumers waste.

The impacts of food waste on our climate and natural resources are enormous since that food that has not been eaten still requires resources to grow, harvest, package, transport, and cook. If all of the U.S surplus food was grown in one place, that "giant farm" might cover roughly 80 million acres, representing more than three-quarters of the state of California. Growing the food on this wasteful farm would require all the water used in both California and

Idaho. In addition, that farm would harvest enough food to fill one 40-ton tractor every 20 seconds (ReFED). Those trailers would travel thousands of miles, with food that, instead of being purchased, prepared, and eaten, would be loaded again onto another line of trucks or hauled to be thrown in landfills. Food will gradually break down to form methane, a greenhouse gas up to 86 times more potent than carbon dioxide (Cambridge University Press, 2013). According to the World Wildlife Federation, the production of wasted food in this country represents the greenhouse emissions of the equivalent of 37 million cars.

The 40 million tons that Americans waste per year equates to 219 pounds of waste per American person. Thus, the amount of food waste in the U.S can fill the empire state building almost 91 times. To further illustrate the food waste per person in the U.S, if we convert the food waste to apples; Every American throws more than 650 regular-sized apples right into the garbage or landfills. Food is the single most significant component taking up space inside U.S landfills, representing 22 percent of municipal waste (United States Environmental Protection Agency).

Food waste is an issue with financial consequences as well. According to the nonprofit organization Feeding America, Americans waste more than \$218 billion each year on food. The average American family of four throws out close to \$1,600 a year in food surplus. If multiplied by the typical 18 years that a child usually spends at parents' home, the total is \$28,800(Food waste in America IN 2021: Statistics & FACTS: RTS). In addition, this enormous amount of money that people waste can serve another purpose, such as education.

Before Covid-19 hit the world, 35 million people, including 11 million children, suffered from food insecurity (Feeding America). One in six Americans, many of them children, is food insecure. To be food insecure means lacking reliable access to sufficient, nutritious, and

affordable food. With the economic impacts of the covid-19 pandemic, that number is expected to increase to up to 50 million people in 2021 (Feeding America, 2021). Of the estimated 125 to 160 billion pounds of food that goes to waste every year, a large portion of it is perfectly edible and nutritious. It could be eaten by those who are struggling with food insecurity (Food Print). With many people struggling to fulfill their basic needs concerning food, the question raised is how or why do Americans waste so much food?

Non-regulation of date labeling, coupled with poor food management, storage habits, and over-preparing, contributes to food waste.

One key driver in household food waste is the misconception of date labeling. The Center for Ecotechnology (CET) reported that 20% of household food waste yearly comes from confusion over the dates on the food packages. Food labeling plays an essential role in keeping consumers healthy and safe. From the ingredient list to the expiration dates, those labels inform the consumer what is inside the food they purchase, and its quality. However, they have been a source of major customer confusion and issues as they are not always intuitive, especially dates. The ambiguity regarding food expiration dates happens because there are no regulations or formal laws regarding that. Product dating is not required or regulated by federal law in the United States, except concerning baby food and infant formula (FoodPrint). The manufacturer has absolute control regarding the use of labels such as “best before,” “sell by,” or “use by” dates on the food packaging. Since there are no official guidelines to follow, the meaning of these terms also varie. Dates labels are not federally regulated because they do not necessarily say that the food is not safe to consume. However, they are the manufacturer’s suggestions for the item’s peak quality. Dates on food packages relate to the quality and not the safety of the food, and here is where consumers get confused. The misinterpretation of dates often results in discarding food

daily, while it actually might still perfectly safe to eat. People get scared of consuming something that might hurt them. So, they choose their safety and choose to waste food that is still eatable.

The other leading cause of household food wastage is poor food management. The lack of food-management skills leads to spoilage and food waste in households. Approximately two-thirds of food waste at home occurs due to food not being consumed on time or before it goes bad (NRDC, 2017). In addition, many customers' purchases are unplanned. People shop without proper meal plans and shopping lists, which often result in inaccurate estimations of what they truly need. Additionally, people sometimes choose to eat at restaurants or order take-out, and they do not eat what they have at home. This situation also can lead to food at home going bad and being thrown away (Gunders, 2017).

Additionally, the other cause of overbuying is sales and promotions that encourage impulse and bulk food purchases. This practice leads consumers to purchase items that generally do not fit in their regular planned meals, or even if they fit, they are a larger quantity than needed. Therefore, that food spoils before being consumed.

Poor storage habits also contribute to the issue. Most people like to keep their fridges well-stocked, and the sheer size of modern refrigerators easily leads to food waste (NRCD, 2017). People also tend to forget that fresh fruits and vegetables cannot be kept for a long time at home. So, if bought in large quantities, they will undoubtedly result in a loss. For example, bananas are one of those fruits that get quickly bad. Unfortunately, they are also the kind of fruits that would look beautiful when you buy them in a pretty bunch, and people quickly lose them before they even remember that they have them.

Finally, over-preparing also leads to food waste in households. About a third of food is wasted in households due to cooking or serving too much food (Food print). In addition, household cooking portions or quantities have increased over the year, leading to more uneaten leftovers. For example, the Cornell Food and Brand lab found that since 2006, serving sizes in the classic cookbook *The Joy of Cooking* have increased by 36 percent. Additionally, people often forget to eat those leftovers, which end up being thrown away again.

By analyzing all the causes that have been identified as the main reasons for food waste, we realize that the key driver is the consumer. The consumer as a single person account for a lot in this issue of food waste, and every action from the moment they think and decide about buying food accounts into the issue. On one side, we have stores trapping them with bulk deals and manufacturers with date labels; and on the other side, we have consumers' lack of knowledge concerning food conservation, planning, and size of the portion. Thus, solving this issue requires deep work on the consumer's behaviors, attitudes, and actions.

Incivility plays a vital role in this issue. I define *civility* as acting respectfully out of love. Wasting food does not result from acting out of love. We, consumers, need to recognize that we live in shared humanity where our actions and behaviors affect everyone else. Love and compassion are necessary for solving this issue. The earth's resources are enough to supply everyone, but some are taking more than what they need, depriving others of enjoying the resources. People who can buy enough food to feed themselves and their families need to realize how much power they have and use that privilege wisely. The issue of food waste demonstrates that humans truly and urgently need to foster civility. A shift from the individualist culture to a collectivist one will allow people to waste less because they will recognize that there are more

humans behind, just their relatives and friends. Therefore, everybody must choose to act out of love and care for humanity so that resources are shared equitably.

Food waste is a solvable issue with proper steps and actions. To achieve that, the root causes of the issue need to be addressed. Since one of the leading causes is the confusion over date labels, standardization of those labels and their meanings can significantly reduce food waste. An official guideline needs to be set by the government regarding the labels. People also need to be instructed regarding the meaning of those terms (best by, consumed by, etc.) and how to act. Remember that expiration dates do not necessarily mean that food is no longer suitable for consumption; they typically only mean quality has peaked. Instead of directly throwing an item away, it might be better to look at its color, consistency, and texture before deciding what to do. Be smart about your food. If it is moldy or smells off, you should chuck it. Liquid milk, for example, when stored in the fridge, can still be safely consumed even after its expiration date. Before drinking it, people can smell it and taste a small quantity to see if it is still drinkable instead of just referring to the label.

Planning, prepping, and storing food can help American households to waste less food. However, America deeply needs proper education when it comes to planning and storing food. It might be great to implement educative videos and short-term programs to teach people how to plan and organize properly. Planning tips include, but are not limited to, checking your refrigerator and pantry to see what you already have in store before making your list, making a list with weekly meals in mind before going to the grocery store, counting, and days you won't be eating at home. Additionally, keeping a running list of meals and their ingredients that your household already enjoys and including quantities in your grocery list are all excellent practices

that can help people buy no more than what they expect to use. By buying only the quantity of food necessary, food in households will be fresh and not wasted.

Additionally, properly storing is a great way to extend the “life” of a food item and keep food fresh for longer. For example, vegetables such as celery and zucchini can be cut, put into small or medium storage bags, and conserved in the freezer instead. Doing so will extend the life of those items and therefore reduce waste. Finally, it is important to carefully position food in the fridge. Here are some guidelines:

1. Make sure that recently purchased food is placed in the back to consume the old ones.
2. Make sure that products such as eggs, milk, sandwiches, leftovers, and cakes should be placed on the middle and top shelves of the fridge. Compartments on the inside of the doors are the warmest. Therefore, they should be used for products that require light refrigeration, such as mustard and mayo.
3. Make sure that fresh meat and fish can be placed into a drawer to prevent them from dripping into other food in the fridge.
4. Make sure that to squeeze out as much air as possible and completely seal plastic bags when storing food.
5. Make sure that the size of the container used match the quantity of contents as much as possible.

Technology can play a massive role in our efforts to reduce food waste in households. There are already numerous applications that can help people significantly reduce the amount of waste. The web application called “Save the food” (<https://savethefood.com/>) is an excellent tool to have because it comprehensively tackles all the leading causes of food waste in households. This website aims to help with intelligent planning, storage tips and strategies, recipes

suggestions, and food quantity estimation. It has many useful functionalities, such as a dinner party calculator that helps people estimate the quantity of food to cook based on the number of guests expected. The app also has a meal preparation option that assists you in creating a custom meal plan and perfectly portioned shopping lists to help people buy only the quantity of food they need. Finally, this application presents statistics about food waste in a very compelling way to honestly give a better understanding of the issue. There is a section called “learn what food waste really costs.” They try to raise awareness about the issue, which I think can play a huge role in solving it. We can only work on solving an issue that we are fully aware of, and this website helps you learn about it deeply and understandably.

In conclusion, food waste in U.S households is an issue with worldwide consequences that require special attention. Food waste affects both economically, environmentally, and socially the United States and the entire world. The lack of federal regulation concerning date labels on food and the lack of planning and storage skills are the main contributors to food waste. There is no general law or guideline concerning date labels, and their meanings confuse consumers and eventually lead to the waste of perfectly edible food. Additionally, consumers are also being trapped by stores that encourage buying in bulk as a way of saving, and the fact that people lack planning skills makes them fall easily into that. Effectively solving this issue requires first acknowledging the issue and how our actions play a role in that. After that, the U.S. government needs to set a clear law concerning food labels for manufacturers and teach the population how to interpret those labels and act accordingly. Finally, we need to change our attitudes and behaviors. We need to learn the proper techniques to apply when limiting the amount of food we buy and, therefore, waste. There are countless tools available to help us through this process. More importantly, humans need to understand that we live in a shared

world where all of our actions impact each other, and therefore we must choose to act out of love and care consciously.

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