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Australia, Food waste and spoilage

Tackling Food waste in Australia

Almost every country in the world has a problem with food waste and spoilage. This can be a result of families over buying food that they won't use, food that doesn't make it out of the farm, and food stores labeling products as 'imperfect' and 'unfit to be sold'. The cold hard truth is that food is not unfit to be sold, people are just too meticulous about getting a carrot with two stems or a pepper that is too small. While food waste is a problem that the entire world needs to work on, Australia can be an advocate for the rest of the world in showing how food waste can be reduced and almost eliminated.

The best way that Australia can prevent major food waste and spoilage is to store fresh foods properly, have programs to distribute leftover and imperfect food to communities in need and educate people on how to properly store food. There is not one solution to solving Australia's food waste and spoilage crisis, but a series of solutions that need to all be used in order to effectively work, the community must be educated and learn how to properly store food, stores and farms need to communicate in order to reduce unsold food and leftovers need to find creative ways to be used efficiently, and most importantly unsold food needs to be available for people that are in need.

Australia's population is 25.36 million people (about the population of Texas) (Hinton 1). Australia has a constitution monarchy and representative democracy, with the prime minister being Scott Morrison. The amount of cultivated land is just over 46 million acres, but that number is at a steady decline. Some of Australia's major crops and exports are oats, wheat, canola, barley and other heavy grain crops. Some other exports that are not crop related are beef and wool. The average Australian farm is 4,331 hectares and use around 100 megaliters of water. Most of Australia is very sunny with mild and pleasant temperatures. Much of the land is semi-arable (land temporary used for farming, five years or less), which is why a lot of fruits and vegetables are imported from around the world from places such as Mexico and China. However, there are large plots of fertile land in the South-East and South-West regions, which is where a majority of the farming takes place. Australia's typical family size is two and a half people. The countries diet consists of lean meats, fruit, grains, seeds, nuts, cheese, and beans. The average wage for a worker is 1,714 AUD (1,308 USD) in 2020. Australia has a free health care system funded through taxation. The average cost of college is 10,350 AUD (7,898 USD) per year. The median age in Australia is 37 years old. There are around 106 men for every 100 women in Australia. The primary language in Australia is English (Rickard 1-3).

Australia has a big food waste problem. Each year the Australian government estimates that 20 billion dollars of food is wasted each year, this is equal to 298kg of food per person. That accounts for 3.1 million tons of food waste per year, with around 2.2 million tons coming from the industry commercial sector ("Working Together to Reduce Food Waste in Australia." 1). That includes retail and businesses such as grocery stores are a big cause of food waste. It is estimated that twenty to forty percent of food grown is thrown away because it doesn't fit society's standards and are considered imperfect. Twenty five percent of water used for agriculture is wasted because the food is wasted. One third of greenhouse gases are from food waste. Since the Covid-19 pandemic started in 2020, Australia's food waste has increased

significantly, over twelve percent of weekly groceries are thrown out in the average Australian household (Keck 2). This is a significant increase, as food waste had a trend of decreasing in the past few years.

The Australian government is currently trying to reduce the country's food waste; They are working to accomplish this by educating their citizens on the food waste problem, collecting food for redistribution, and investing in waste treatment centers for proper disposal of food waste. While these programs are helpful, more can be done to have a safer and less wasteful food cycle, that also helps citizens in need. According to the Australian environmental health website, good and safe food waste management includes efficient and sustainable farming practices, sustainable and effective packaging, alternative landfill disposals, household and consumer education and partnerships between farms and retailers. Australia has a goal of cutting the amount of food waste in half by 2030. To do this they have set up a program called 'Stop Food Waste Australia' and invested four million AUD (around three million USD) into the nonprofit (Tackling Australia's food waste 2).

Food waste is not only companies and corporation problems, but individual people's problems when it comes to properly storing food at home. Educating people on how they can properly and safely store food at home to prevent spoilage, is key to reducing overall food waste. Different foods have different shelf lives; for example, strawberries and raspberries have a shelf life of about a week, while potatoes can be kept safely for a few months if they are stored correctly. Some things to note that can affect how long food lasts is the humidity, the freshness when originally purchased, and the temperature of the fridge or freezer. When storing leafy greens, such as lettuce or kale, wrap the food in a cotton cloth or tea towel. This allows the food to breathe and dry which will prevent it from getting slimy and developing mold. Wrapping meat in paper instead of plastic, prevents the food from drying out and becoming hard. Storing things in glass can help prevent bacteria and other chemicals found in plastic containers from seeping into food and making it go bad earlier than it would if it was in glass. Storing fruits and vegetables in dark places is better than places with direct light, as light can degrade fresh food faster. Almost every type of food item should be stored in an airtight container. Food will stay fresh and unspoiled the longest in a fridge with temperatures of forty to sixty degrees. Keep foods that don't store in the refrigerator at a consistent temperature of fifty to seventy degrees. If the food isn't able to be eaten before it expires or goes bad, canning and pickling is a fantastic way to prolong the life of the item, if they have the proper equipment. Reducing waste in an Australian home starts with proper and efficient storage, and sometimes that includes finding creative ways to use food ("Tips for Long Term food storage" 1-2).

Keeping track of the food in the fridge and already at home, is also important when trying to reduce food waste. Make lists of what you need at the store, so you are not buying things that you already have or don't need. Keeping an inventory of what is in your fridge before you go shopping also goes hand in hand with making lists. And finally keeping a basket of food in the fridge that needs to be used right away. Use what is in the basket first, when looking for snacks or making meals, so you are aware of what is about to go bad and needs to be used.

A problem that generates a lot of food waste is the idea that it isn't 'fit for human consumption'. However, that does not mean that the food is bad or that humans can't eat it. The food just can't be sold at most stores and doesn't meet grocery store's idea of perfection. This type of food should be given to farms for the animals or made into animal feed. Same goes for the food that never even made it off the

farm in the first place. This is a small thing that can have a significant impact on the environment. A typical cow eats over twenty-seven pounds of grain food per day. That would be about 200 pounds of grain food per week (Rasby 1). If farmers were to feed left over grains and vegetables to their animals, food that is completely fit for consumption, the amount of food that never leaves the farm would be substantially cut, going on the statistic that twenty five percent of food does not even leave the farm.

Repurposing food into various products is also an incredible way to not only reduce food waste but also for companies to find less wasteful ways to make money. Another way to find new uses for imperfect food is to freeze dry fruit and vegetables into a powder so that they can be made into different snacks where the look of the food doesn't mean anything. Not only will this reduce waste, but companies can make money off unused foods. Since oat is one of Australia's main grain crops, imperfect oats could be made into oat flour, which has a long shelf life, making it a more sustainable choice.

Most food that ends up getting wasted has a lot of potential, but it unfortunately never gets to that point as it is thrown away. That is why food that is left over at stores should be given to organizations to distribute to people that don't have access to fresh food. To start making real change with food waste, a few things must happen. There needs to be direct relationship and communication between the farmers and stores and a relationship between where the leftover food is, mainly the store, and where it will be distributed. This means that stores need to be talking with the farmers directly about what they need and what they don't need. Then unsold food that doesn't go to the stores can be delivered elsewhere, where it will be used without the store being a middle man in the situation. The set ups, where the service should be placed is at easily accessible, busy areas such as government buildings, schools and neighborhood churches. Government buildings are a good place to have this program set up because they are typically easily accessible to a large majority of people and tend to be set up to help people. As for schools, children and parents can get free food when they can't afford to feed their families. At the spots where the food would be located, people can pick up as little or as much as they need depending on the day. While these types of places would only be open during work hours, in order to make sure everything works efficiently and everyone has the opportunity to get what they need, there would be refrigerators outside of the buildings for the off hours and weekends. The community fridges are where most of the food waste will be prevented, while also helping homeless and people in need that can't get food when they need it.

Food waste recks havoc on the world economy, and in Australia specifically over 20 million dollars are wasted each year from wasted food. One in five bags of groceries end up in the landfill, this is equivalent to 3,800 dollars of food per household each year (National Food Waste Baseline 6). Through a graph created by the National Food Waste Baseline report, it was made clear that the hospitality sector (retail and restaurants) creates the most food waste in Australia. After hospitality the largest food waste sector is households (National food Waste Baseline 6). Which would make these businesses perfect contenders for to donate to the food fridges.

There are many community fridges programs all over the world, but these types of fridges in Australia will be solar powered, to reduce energy cost. The benefit of the fridges is that people don't have to manage them all of the time, there would just need to be a security camera in case anything were to

happen. The fridges need about 100 watts of energy to be properly powered, and a basic security camera needs six to ten watts of energy. A 250-watt solar Panel would be an appropriate size for this project, which cost around 175 (USD). A battery to store energy so the fridges can be powered at night and when there is a darker day, will cost around 200 USD. The fridge itself costs anywhere from 300 to 600 USD, depending on if it is used or new. It would be even more sustainable to get a used fridge donated. It would be preferable to have a fridge with a clear door, so people are able to see what is inside. Using PVC pipes, a small shelter would be constructed, in which the solar panels would be placed on top, and the fridge and battery inside of the shelter. Once the fridges are ready to be put out in public, government buildings, schools, and churches would be a wonderful location for them, but local businesses are also ideal to raise awareness to the community, and hopefully get donations.

A full fridge with everything that is needed for it to be build, costs around 1,325 Australian dollars (1,011 USD). A full break down of the cost of each fridge is broken down in a pie chart below (figure 1). The Australian government is supplying four million Australian dollars (approximately 3 million USD) to help reduce food waste and spoilage. However, because food fridges are also helping homeless people by finding ways for the homeless population of Australia to have food, part of the fund could potentially come from the 129 million Australian dollars (98.5 million USD) the government supplies for homeless services (“Homeless” 1). The program would be funded by this money and donations. If the government uses one fourth of its food waste fund, one million AUD, to create community food fridges, they could fund seven hundred and fifty fridges around the country. The distribution of the fridges within Australia is determined by the population in each state, not the size of the states, because while some of the states have more land, others have more people. Specific placement of the fridges are dependent on population of the cities and towns that are within each state, with a majority of the fridges going to larger cities. West Australia is the largest state, but only has about ten percent of the Australian population, so it would have 78 fridges. Queensland is the second largest state, and has twenty percent of the population, so it would have 151 fridges. The Northern Territory has four percent of the population, even though it is the third largest state, and it would have 30 fridges. South Australia has just under seven percent of the population and would have 52 fridges. New South Wales has over 31 percent of the population and would have 238 fridges as it is the highest populated state. Victoria has around 26 percent of the population, but only three percent of the total land! This means Victoria would have 196 fridges. (To get a perspective of the amount of people per land area, reference the graph below (figure 2)) (Hinton 1).

However, the distribution of fridges can change as time goes on, and funding is increased. With the increase in Covid-19 everywhere in the world, homelessness is on the rise. With this in mind, regions with large cities would be wanting an increase in fridges, as cities have high homeless populations, this is even more relevant to New South Wales, where the major city Sydney is located (Homelessness and Homeless Services). It is also important to note that while homeless citizens are a large demographic of who will be accessing the fridges, anyone that is in need of food is able to use the fridges.

The food inside the fridge will come from donations from the community. This is a great away for local families to donate extra food they already have or feel that they have the budget to donate to the community; however, the most important donors will be local restaurants with extra food. Most restaurants have left over food at the end of the day that they aren’t able to sell the next day, bakeries are wonderful examples of this, and instead of letting this food go to the landfill and release methane gas into the atmosphere farther advancing climate change, the restaurants could put leftover food in a fridge close

to them. While many businesses are wary of donating food because of liability reasons, businesses are protected under the Civil Liability Amendment Act of 2005. The act says any extra food donated from a business, if the food was donated as a charitable act and with safe precautions when handling, is okay and will be protected from any civil liability (“Legalities of donating food to charity” 1). Finally, another supplier would be grocery stores that have left over food that was damaged, mislabeled, or other minor problems not effecting its overall quality. With these three suppliers, the fridges should always stay relatively full, helping people that need food and are unable to get it.

There are a lot of steps that Australia needs to take in order to get rid of their food waste. While most of the solutions were modeled for Australia, almost any country can adapt all or some of these solutions so they can also reduce their food waste. The biggest misconception about food waste, is that it happens at the retail level, but spoiling food at home is just as big of a problem. There is not one solution to solving Australia’s food waste and spoilage crisis, but a series of solutions that need to all be implemented into society to effectively work, the community must be educated and learn how to properly store food, stores and farms need to communicate in order to reduce unsold food and leftovers need to find creative ways to be used efficiently, and most importantly unsold food needs to be available for people that can’t get it themselves. Overall communication between different businesses and help from the community is going to be key in solving, what seems like never ending problem of food waste.

*The cost of the fridge is modeled from the United States based non-profit organization Freedge.

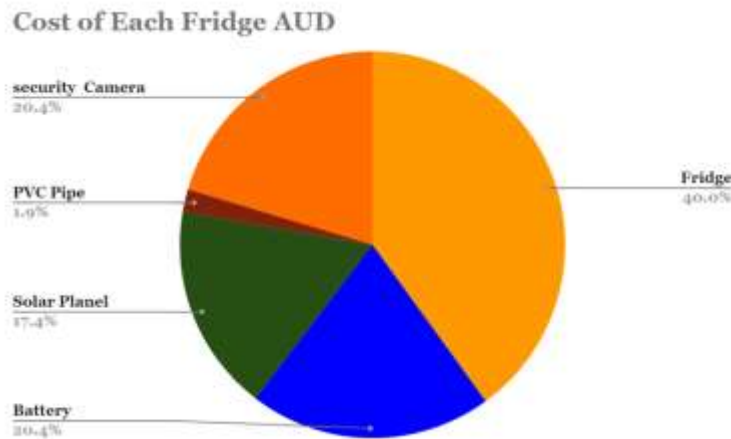


Figure 1

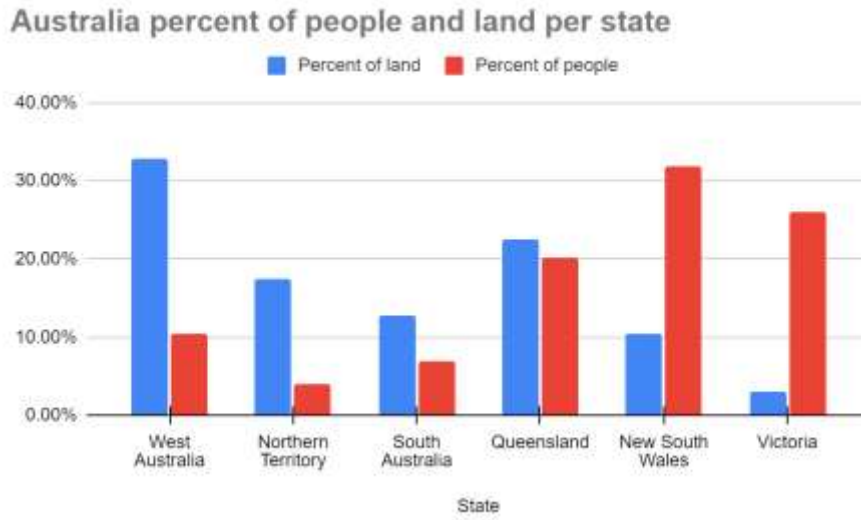


Figure 2

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