Decipher: Food Waste

"A man's reach should exceed his grasp or what's a heaven for."

Our Mission

To Restore Balance To The Environment

Decipher Mission Statement

Slogan - Restore Balance

Instagram Bio - Food waste is a huge issue. We've solved it, but not without your help.

Mission Statement - We all live on Earth. We all don't agree with what is happening to it. Our mission is to provide balance amongst us all by developing eco-friendly services and products that are SIGNIFICANTLY better than their counterparts, not just eco-friendly alone. Our focuses will be to SOLVE climate change, STOP sending organic waste to the landfill, END drought through food-water reclamation, MAKE available to the poor and hungry excess food that would go to waste, CREATE access to healthy foods and ERADICATE soil depletion through reuse of organic material.

The Problem: Food Waste In America

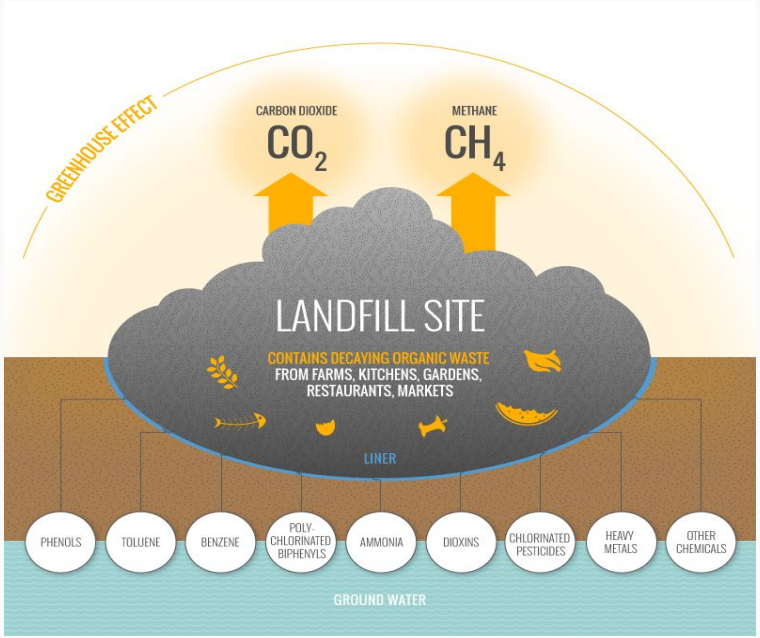
"Americans waste an unfathomable amount of food. In fact, according to a *Guardian* report roughly 50 percent of all produce in the United States is thrown away—some 60 million tons (or $160 billion) worth of produce annually, an amount constituting "one third of all foodstuffs." Wasted food is also the single biggest occupant in American landfills, the Environmental Protection Agency has found."

"About 95 percent of the food we throw away ends up in landfills or combustion facilities. In 2014, we disposed of more than 38 million tons of food waste."

Effects On The Environment: CO2

CO2 is less than one percent of the atmosphere, it makes up 0.04% of the earth's atmosphere. CO2, Methane and Water Vapor are gases that are responsible for trapping heat, they are vital to the Earth being able to sustain life. Although, too much CO2 and the planet will begin to trap more heat causing the planet to warm up.

"This extra warming associated with re-emission of outgoing Earth heat or light is called the "greenhouse effect". The greenhouse effect traps some Earth heat on the planet, making it warmer than it would be if there were no water or CO2 in the atmosphere. In a similar way, blankets trap our body heat and make our beds warmer than they would be if our body heat could escape directly to the air in the room."



Effects On The Environment: Methane (CH_4)

"Diverting food waste from landfills not only conserves limited landfill space, but also helps to reduce greenhouse gas emissions. In landfills, organic materials, like food scraps and yard trimmings, are broken down by bacteria to produce methane. Methane, a potent greenhouse gas, is shown to have a warming potential of 21 times that of carbon dioxide."

"While methane doesn't linger as long in the atmosphere as carbon dioxide, it is initially far more devastating to the climate because of how effectively it absorbs heat. In the first two decades after its release, methane is 84 times more potent than carbon dioxide. *Both* types of emissions must be addressed if we want to effectively reduce the impact of climate change."

84 TIMES MORE POTENT

THAN

CARBON DIOXIDE

Cows, Pigs and Other Large Animals Produce Excessive Amounts Of Methane. This Is Why Feeding The Food Waste To Pigs And Other Animals Is NOT Effective At Helping Reduce Environmental The Effect.

What Are The Consequences?

Soil Depletion

This occurs when the components which contribute to fertility are removed and not replaced, and the conditions which support soil's fertility are not maintained. This leads to poor crop yields. In agriculture, depletion can be due to excessively intense cultivation and inadequate soil management.

Feeding The Hungry

A new study by the UN's Food and Agriculture Organization found that limiting food waste globally could reduce the need to raise more food by 60 percent. In other words, the need to produce more and more food could be dramatically offset by reducing the amount that is wasted.

Climate Change

A change in the statistical distribution of weather patterns when that change lasts for an extended period of time. Climate change may refer to a change in average weather conditions, or in the time variation of weather within the context of longer-term average conditions.

Soil Depletion: What You Should Know!

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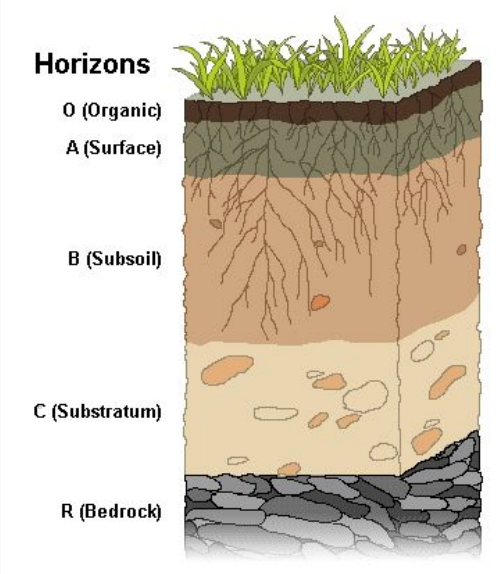
Soil scientists use the capital letters O, A, B, C, and E to identify the master horizons, and lowercase letters for distinctions of these horizons. Most soils have three major horizons—the surface horizon (A), the subsoil (B), and the substratum (C). Some soils have an organic horizon (O) on the surface, but this horizon can also be buried. The master horizon, E, is used for subsurface horizons that have a significant loss of minerals (eluviation). Hard bedrock, which is not soil, uses the letter R.



Modern Day Example

The Dust Bowl
1930-1936

Severe drought and a failure to apply dryland farming methods to prevent the aeolian processes (wind erosion) caused the phenomenon.

Hunger: What Are The Facts?

According to USDA, more than 41 million Americans face hunger, including nearly 13 million children. Some of the groups experiencing the highest rates of food insecurity include households with children led by single women and people living below the poverty level. In addition, about a quarter of food-insecure households report incomes that make them ineligible for any form of federal food assistance.

The United States Department of Agriculture (USDA) reported today that 12.3 percent of American households remain food insecure – meaning that 1 in 8 households in the United States had difficulty at some time during the year in providing enough food for all their members. Although figures have improved since the peak of food insecurity in 2011 following the Great Recession, the numbers of people experiencing food insecurity have not reached pre-recession lows.

To see the full report, visit

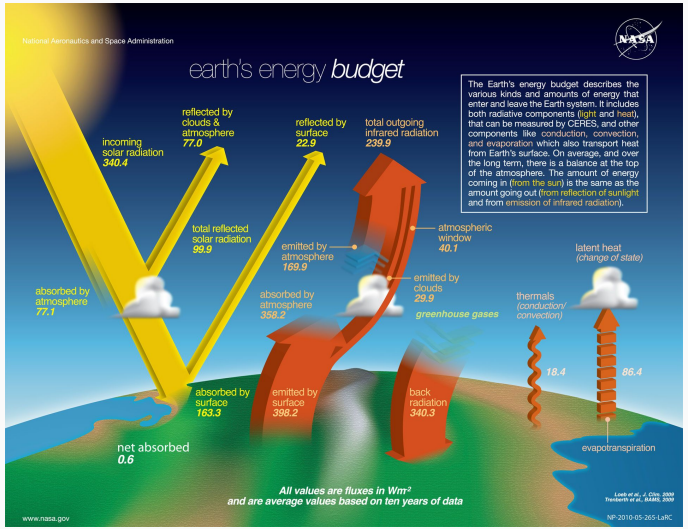
https://www.ers.usda.gov/publications/pub-details/?pubid=84972.

Climate Change: What Is That?

Climate change occurs when changes in Earth's climate system result in new weather patterns that last for at least a few decades, and maybe for millions of years. The climate system comprises five interacting parts, the atmosphere (air), hydrosphere (water), cryosphere (ice and permafrost), biosphere (living things), and lithosphere (earth's crust and upper mantle). The climate system receives nearly all of its energy from the sun, with a relatively tiny amount from earth's interior. The climate system also gives off energy to outer space. The balance of incoming and outgoing energy, and the passage of the energy through the climate system, determines Earth's energy budget. When the incoming energy is greater than the outgoing energy, earth's energy budget is positive and the climate system is warming. If more energy goes out, the energy budget is negative and earth experiences cooling.

Human activities can also change earth's climate, and are presently driving climate change through global warming. There is no general agreement in scientific, media or policy documents as to the precise term to be used to refer to anthropogenic forced change; either "global warming" or "climate change" may be used. The first describes the average effect on a global scale, whilst the second describes how different geographical regions are affected differently.

Earth's Energy Budget



Vermicomposting: Why is it the solution?

"Worm castings possess the right nutrients for plants to thrive; Nitrogen, Phosphorus, and Potassium. The food waste or organic material that is grown from the ground and then is consumed by the worm will come out as castings filled with Nitrogen, Phosphorus and Potassium. Worm castings are also effective for repelling many pests that feed on the plants, such as aphids and spider mites. This is because the worm casting contain a natural insecticide which is systemically absorbed by the plant."

Worm Castings contain a highly active biological mixture of bacteria, enzymes, remnants of plant matter.

Animal manure and chemical fertilizers have to be broken down in the soil before the plant can absorb them. Worm castings do not.

As organic matter moves through the alimentary canal of the earthworm, a thin layer of oil is deposited on the castings. This layer erodes over a period of 2 months. So although the plant nutrients are immediately available, they are slowly released to last longer.

The bacteria in the alimentary canal of the earthworm transforms organic waste to natural fertilizer. The chemical changes that the organic wastes undergo include deodorizing and neutralizing the pH level. This means that the pH of the castings is 7 (neutral) and the castings are odorless (they smell like a forest after rain). The worm castings also contain the bacteria, so the process is continued in the soil, and microbiological activity is promoted.

Understanding The Worm

Mouth (Buccal Cavity) - Contains specialized sensory cells which allow worms to locate food and minerals. The cells can detect and recognize sucrose, glucose, quinine and saline chemicals from the environment.

Cerebral Ganglia - Serves as the brain inside the worm. Helps the worm sense light, heat, vibration and moisture.

Subpharyngeal Ganglion - Like the brain stem, connects the cerebral ganglia to the ventral nerve.

Pharynx - This is where the soil and food begins to enter the digestive system. This is before the Esophagus.

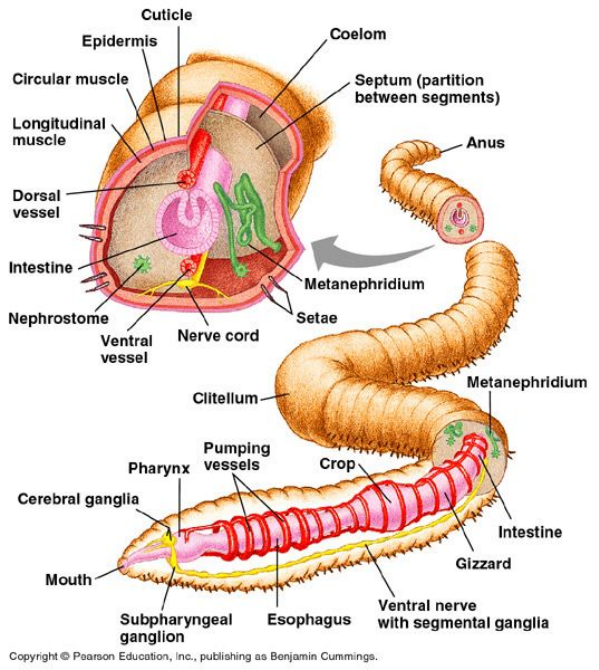
Esophagus - After the pharynx, the esophagus has calciferous glands that release calcium carbonate to rid the earthworm's body of excess calcium.

Crop - This is where the worm stores and partially digests the food. Sand is stored here to help grind the food.

Gizzard - This is responsible for the mechanical breakdown of the soil and organic material that worms eat.

Intestine - Gland cells in the intestine release fluids to aid in the digestive process. Blood vessels in the intestines absorb nutrients and transport it through the body.

Anus - Releases digestive system waste



2019-2020 Plan

See Business Plan 1

Expansion Plan

See Business Plan 2

See Map of Jurisdictional Boundaries

Map

Collections From Homeowners - How It Works

1. **Why Will The Homeowners Pay To Pick Up Food Waste?**
    a. Homeowners will pay to have their food waste picked up of their own volition, meaning they will not need an incentive to help end food waste. They simply understand why it's important and they want to help. Other people will need to be incentivised to manage their food waste. This will be done in 3 phases. Phase 1 We will provide one grow kit to the homeowner per month that is made from their food waste. Phase 2 We will purchase overbought edible food from them for $0.50 cents to help alleviate their waste and they will receive money for it and for Phase 3 This will be done via a Netflix-like app. The app will work with a list of restaurants in categories or types of food. The homeowner will then select what free item they will get via an app. They can only pick from each restaurant once a month or on a timeframe set by the restaurant. This will provide incentive to help homeowners want to recycle.
2. **What Will The Homeowners Be Responsible For?**
    a. Participating homeowners will be responsible for two types of food. Inedible and Edible food waste. Both of these foods will be placed in separate bags and set on the doorstep Tuesday morning for pickup between 9am and 12pm.
3. **What Will The Company Do About The Smell? Where Will The Waste Be Stored Till Pickup? How Often Will Decipher Collect The Food Waste From Homes? What About Summer And Fruit Flies?**
    a. Decipher will provide bins (See Next Slide) that collect food waste and have NO SMELL if they are picked up every Tuesday morning. Decipher takes the food waste back to our facility to be chopped up, have the water removed and recycled then vermicomposted. The edible food is taken sold to Three Square Food Bank, people who are on SNAP/EBT benefits for a minimal amount per item. The food we buy back that is becoming inedible but not there yet will be donated to Catholic Charities or another local food bank and given to people in need. Decipher will receive a tax write off in return for donating. The food is collected every Tuesday morning between 9am-12pm. EXTRA PICKUPS ARE AVAILABLE AT NO CHARGE IF THE BIN IS FULL BEFORE TUESDAY. The collection bins will have "zappers" on the lid to attract and kill the fruit fly. They will fall into the bin and be vermicomposted.
4. **How Much Will It Cost for Homeowners?**
    a. The service costs $20 dollars a month. This includes the collection bin, bags for the bin, a reusable canvas bag for the edible food waste and the ability to request a grow kit once a month. As well to incentivize owners to donate edible waste we will buy edible food that they have over purchased from grocery stores for $0.50.

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