

DRAFT
Recycling Advisory Committee (RAC) Meeting Minutes
March 10, 2021, 8 am – 9:30 am
Virtual Meeting Minute Taker: Meera Singh

Members present: Leah Beckett, Holden Cookson, Catrina Damrell, Debby Galef, Rob Gogan, Martha Henry, Sakiko Isomichi, Susy Jones, Debby Knight, Scott MacGrath, Audrey Ng, Laura Nichols, Richard Nurse, Diane Roseman, Meera Singh, Quinten Steenhuis, Mary Verhage, Suzanne Wong

Members absent: Ilana Bebchick, Shirley Elliot, Lindsey Levine, Janet Mosley, Kristen Watkins

Staff Present: Mike Orr

Public present: Dailey Brannin, Helen Snively

1. Housekeeping

- Minutes of the February 10 meeting were approved
- No public comment
- Scott MacGrath (RAC co-chair) asked for a volunteer to be April minute taker
- Mary – request that edited minutes be re-sent red-lined so members can see what changes have been made

2. City Updates

Mike - no updates

Mike – DPW hiring for operations assistant in the solid waste division, a rare vacancy. Filling that position will help as they have been short-staffed for two years.

Yard waste pick up resumes Thursday, April 1

3. Action Items from February

Rob shared the link for the Mass Recycle Product Stewardship webinar to be held on March 16.

4. Discussion – Landscape of Food Waste and Food Recovery in MA

Holden Cookson and Catrina Damrell shared their experiences with food waste and food recovery.

Holden – general review of FW recovery in the region

- Has worked in FW for a decade
- Currently with Agri-Cycle, a food waste collection service in New England
- In college studied environmental policy and planning
- Worked for Garbage to Garden as accounts manager in Portland, ME

Holden's presentation - Anaerobic Digestion (AD)

- Agri-cycle – AD company operates in 6 New England states
All types of FW collection from mostly commercial entities, schools, hospitals
- overview of the AD process

- shared data from an article published by Bio-Cycle based on an EPA study. The study compares codigestion at a wastewater treatment facility to composting
- What food waste is and issues around food waste
 - labelling (best by/use by), no federal guidelines, lobbying efforts of companies, storage and planning, restaurant inventory management, portion, procurement, “food miles” and greenhouse gases (GHG),
 - serving style - buffet style and tray usage – study showed food plate waste produced at each university dining hall amounted to .5 lbs. per student per day.
 - marketing standards – beauty standards, shelf management
 - supply chain – demand has grown for out of season fruit/veg
 - global foods wasted
- Holden - AD is the future of food waste disposal
Bio-Cycle report notes that AD led in carbon offsets across the board

Questions & Comments

- Debby Knight – how much FW is edible versus non-edible?
Holden – roughly 1/3
- Mike – AD is the same process Cambridge uses. AD better than composting – it captures carbon and puts it to better use – methane is generated then consumed to fuel the Greater Lawrence Sanitary District GLSD facility, the bio-solids that are left are dried and used as fertilizer
- Eutrophication is not great for water quality. Nutrients are good on land but not in water.
- Holden – controversy among Cambridge residents who are upset over AD of organics versus composting
- Other AD processes like farm-based AD have fewer benefits than water-based AD
- **The study does not address timeline variation between AD and composting, land use, in regard to space and capacity, AD Eutrophication via fertilizer**
- Scott – is the biogas product similar to traditional natural gas?
Holden – yes and it can be used in the same pipelines
Mike – GLSD captures and uses the gas on site

Catrina Damrell

- Katrina’s career in food retail, grocery stores and sustainability practices
- In 2012 founded nation’s only Grocery Store Certification Program GSCP

Catrina Damrell’s presentation on Food Waste and Food Retail

- Grocery stores are an immense opportunity for tackling climate change issues with regard to food waste, food recovery, recycling and GHG emissions
 - 30% of food wasted in the US happens at grocery stores
 - Pre-Covid – Americans go to the grocery store 2x/week
 - \$1300 annually spent on food that gets uneaten
- Stores can take a leadership role in encouraging consumers to be responsible
- EPA Food Recovery Hierarchy tool prioritizes actions organizations can take to prevent and divert food waste
 - Source reduction
 - Feed hungry people
 - Feed animals
 - Industrial uses

- Composting
- Landfills

Shared some innovations under the prioritized actions

- Source reduction
 - California company Apeel Sciences – makes plant-based coating/protection for food to increase shelf life
 - Phood Solutions – Boston-based start-up developing AI-powered food waste prevention platform – camera attached to scale to measure waste amounts
- Feeding Hungry People/Repurposing Scraps
 - Grocery stores are concerned about liability risks so focus on middle of store food donations (dry, canned, packaged goods), some use ends of cold cuts to make salads (repurposing food scraps)
- Feed Animals –
 - Stores have operational practices making sure food scraps are okay for cattle feed
 - Some companies have green teams, e.g. Hannaford in Uxbridge, MA
- Industrial uses –
 - Agri-Cycle (FW hauling), Exeter Energy (FW disposal)
 - Whole Foods – digester at Fresh Pond store
- Compost – some stores sell compost made from their food waste – e.g. Hannaford
- Opportunities
 - Employee training
 - Metal cart with 3 bins to segregate waste on-site - Hannaford

Questions & Comments

- How do these programs save money?
Catrina – grocery store companies save the money they would spend on getting waste hauled for disposal, income from cardboard recycling
- Debby Knight - what happens to waxed cardboard?
Used to make fire starter logs
- Sakiko– how much do grocery stores spend on consumer outreach and education?
Catrina – grocery store companies do have outreach team but doesn't think they use this opportunity to educate consumers on FW reduction
- Helen Snively – question on impact of pharmaceuticals that get mixed with the sludge versus composting –“If you do this on a farm, you avoid the traces of pharmaceuticals/chemicals that arrive in the wastewater treatment plant? So the soil you produce at the end doesn't contain that junk? Is that true?”
- Mike – exposure to medicines through AD/composting is insignificant compared to consuming a pill. No impact of pharmaceuticals in Cambridge's method of FW disposal.

Compost improves soil health, fertilizer improves soil nutrients

- Mike – there is not a strong market for finished compost, regenerated soil is not a commodified resource, compost sites have trouble moving finished product due to price – gap in economic connection
- Susy posted links in the chat for FWR app Too Good To Go and Daily Table grocery store
- Helen Snively - This whole question of compost vs. fertilizer is so important. The elephant in the room is how fertilizer impacts wildlife in the soil and how it impacts bugs/butterflies which feed birds...,etc.. complicated but vital to understand.

Sub-Committees break out groups

Closing

- Action Items
 - Mike – attach 2 presentations (Holden's and Catrina's) to meeting minutes
 - Volunteer to be minute taker for the April RAC meeting and beyond
 - Sakiko – Share link for weekly waste talk series
- Public Comments - none
- Other/Announcements
 - 1) Reminders from Rob

FREE: Tuesday, 3-16-21, 1-2:30 PM: MassRecycle Product Stewardship Webinar: focus is how legislation happens in MA and historic roadblocks to PS:
<https://docs.google.com/forms/d/e/1FAIpQLSci4ljzxfIBxsZCtJnGvXrYi9hpH0nO3FUW2XvTJDaRacCgQQ/viewform>

FREE: Thursday, 3-18-21, 1-2:30 PM: How MassRecycle helped start Recycling In Massachusetts: Three former MassRecycle Presidents share their thoughts on past, present and future of recycling in MA:
<https://massrecycle.org/events/calendar/#id=113&cid=1565&wid=801>

MassRecycle Annual Conference and Trade Show: "Where does it all go and How Can We Do It Better?" Registration fee. Thursday, 4-15-21, 1 PM - Friday, 4-16-21, 1 PM: info at <https://massrecycle.org/events/calendar/##id=111&cid=1565&wid=801>
Registration: <https://massrecycle.org/events/conference/>
 - 2) Richard was impressed by Sakiko's Waste Talk guest from Lebanon who talked about his company's innovations for repurposing plastic waste – he encouraged his counterparts in Ohio to consider doing the same
 - 3) Catrina – is there a way to post events on a common calendar?

The meeting adjourned at 9:30 AM.

UNDERSTANDING

FOOD WASTE

1/3 OF ALL THE FOOD PRODUCED ON EARTH IS WASTED

WE PRODUCE ENOUGH FOOD TO FEED EVERYONE TWICE

25% OF ALL FRESH WATER IS USED FOR FOOD THAT IS NEVER EATEN

YET WE HAVE OVER

650,000,000 STARVING PEOPLE



RESIDENTIAL

1 CONSUMER PSYCHOLOGY

Grocery stores are designed to make consumers purchase MORE. This results in buying more than we need.

2 LABELING

Date labeling can be confusing! "Best by", "Expired by", and "Sell by". They all mean different things, and there are no federal standards for this language for consumers to rely on.

3 STORAGE AND PLANNING

Meal planning, and storing leftovers properly are a great way to reduce food waste.

1 MENU PLANNING

Maximizing what has been purchased, portion size, and serving techniques all have impacts on food wastage. The more you plan, the less you waste!

2 INVENTORY MANAGEMENT

Tracking and optimizing storage of food before and after preparation reduces food waste.

3 PROCUREMENT

Having a close relationship with local suppliers results in accurate ordering, and keeping inventory low. Local sourcing cuts down on "food miles", reducing GHGs.



RESTAURANTS

1 SHELF MANAGEMENT

Overstocking shelves, particularly with produce, can result in more damage food AND sacrificing a large portion of the product solely for presentation. (think apple pyramids)

2 BEAUTY STANDARDS

If a product doesn't look perfect it is more likely be thrown away. Whether it's a bruised apple, banana, or a carrot with 3 heads, it usually gets left behind.



GROCERS

3 SUPPLY CHAIN

The sourcing of materials REALLY matters. How many hands touch the food? How many miles does the food travel? These two questions are huge factors. Reducing mileage and touches results in less waste.

1 SERVING STYLE

Buffet style and tray usage prompt people to take as much as possible.. often times this results in plate waste. Studies suggest each student produces 3 ounces of FPW (food plate waste) per meal... That's .5lbs per day in just PLATE WASTE.

2 LOW VALUE FOODS

Food service providers must create foods in mass. Quality control during bulk production can be very difficult. Increased food plate waste is the result of meals that are perceived to be low-value.

3 SUPPLY CHAIN (again)

The sourcing of materials is important here, too. More hands, more miles, MORE WASTE.



INSTITUTIONS
(Schools, Universities, and Hospitals)



PROCESSING & MANUFACTURERS

1 MARKET STANDARDS

Ugly or abnormal produce are disposed of on farms, or discarded at the processing/manufacturing stage before getting to our supermarkets or shelves.

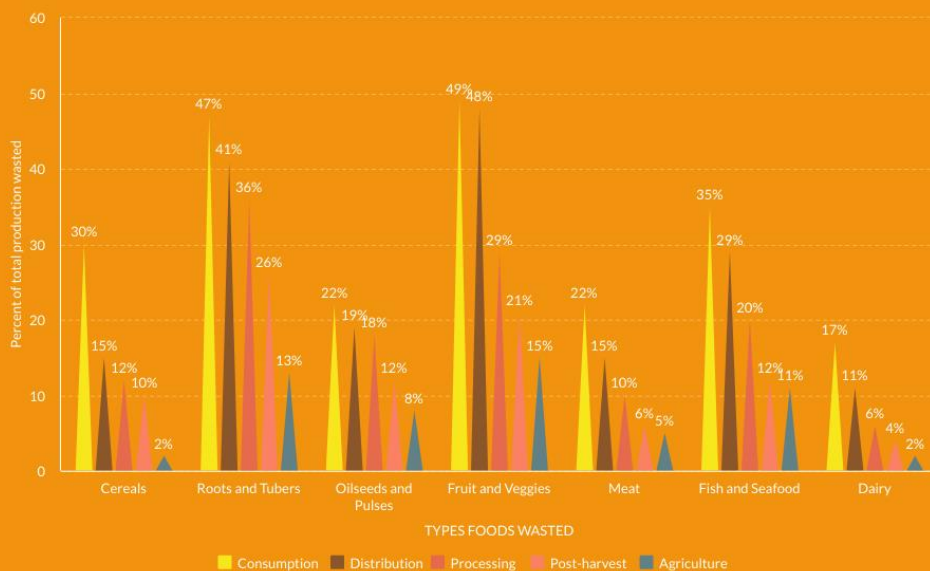
2 TRANSPORTATION LOSS

Consumers expect to have blueberries and tomatoes in December, this means that foods are having to be travel longer distances (potentially thousands of miles) to meet demand.

3 SUPPLY CHAIN (again)

Localizing and strengthening our processes results in a reduction of food waste. Less miles, less hands, less food waste.

GLOBAL FOODS WASTED



OUR PROCESS



Collection



Processing



Energy Production



Organic Fertilizer

Step 1

Collect and process organic material into a slurry.



Step 2

Heat slurry to ~104° F and agitate intermittently. This allows the microorganisms to begin creating biogas.



Step 3

The biogas is used to run our 3 MW engine, which is directly connected to the grid.



Step 4

An odorless organic fertilizer is produced as a by product. Reducing imports of synthetic fertilizers.





F O O D W A S T E

AD IS THE FUTURE OF FOOD WASTE DISPOSAL

Comparing all of our options for food waste, what's best? AD.



A satellite view of Earth at night, showing a curved horizon and numerous glowing city lights across the dark surface of the planet. The lights are concentrated in certain areas, creating a pattern of yellow and orange specks against the deep blue and black of the night sky.

THE STUDY

Bio-Cycle published a two part article based off of a study conducted by the EPA in July of 2021.

"This study compares the environmental and economic impact of recycling 1 kilogram (2.2 lbs) of typical commercial food waste (e.g. fruit, vegetable, meal scraps) through either codigestion at a wastewater treatment facility (WWTF) or composting.

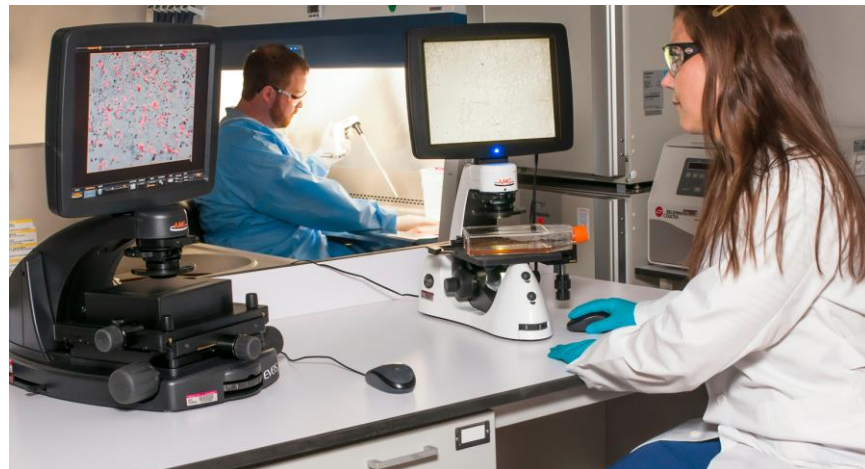
The recycling options are compared against common disposal pathways — landfill and WTE incineration — using life cycle assessment (LCA) and life cycle cost analysis (LCCA) methods."



CRITERIA FOR IMPACT

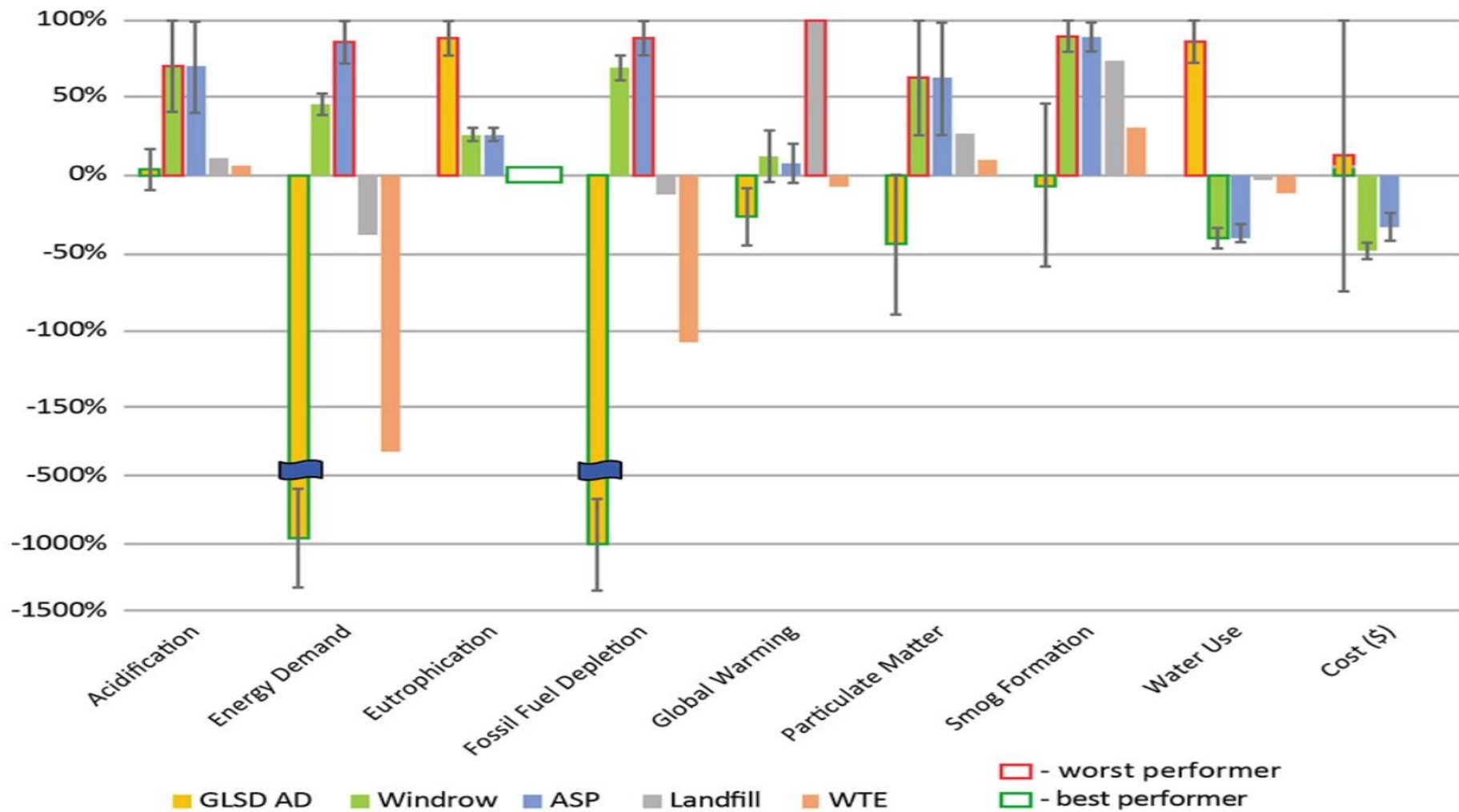
The impacts are quantified in eight environmental categories covering global and regional impacts as well as life cycle costs (reported as net present value).

Acidification
Energy Demand
Eutrophication
Fossil Fuel Depletion
Global Warming
Particulate Matter
Smog Formation
Water Use



**Apples to
apples**

Percent of Maximum Impact





G
W
P

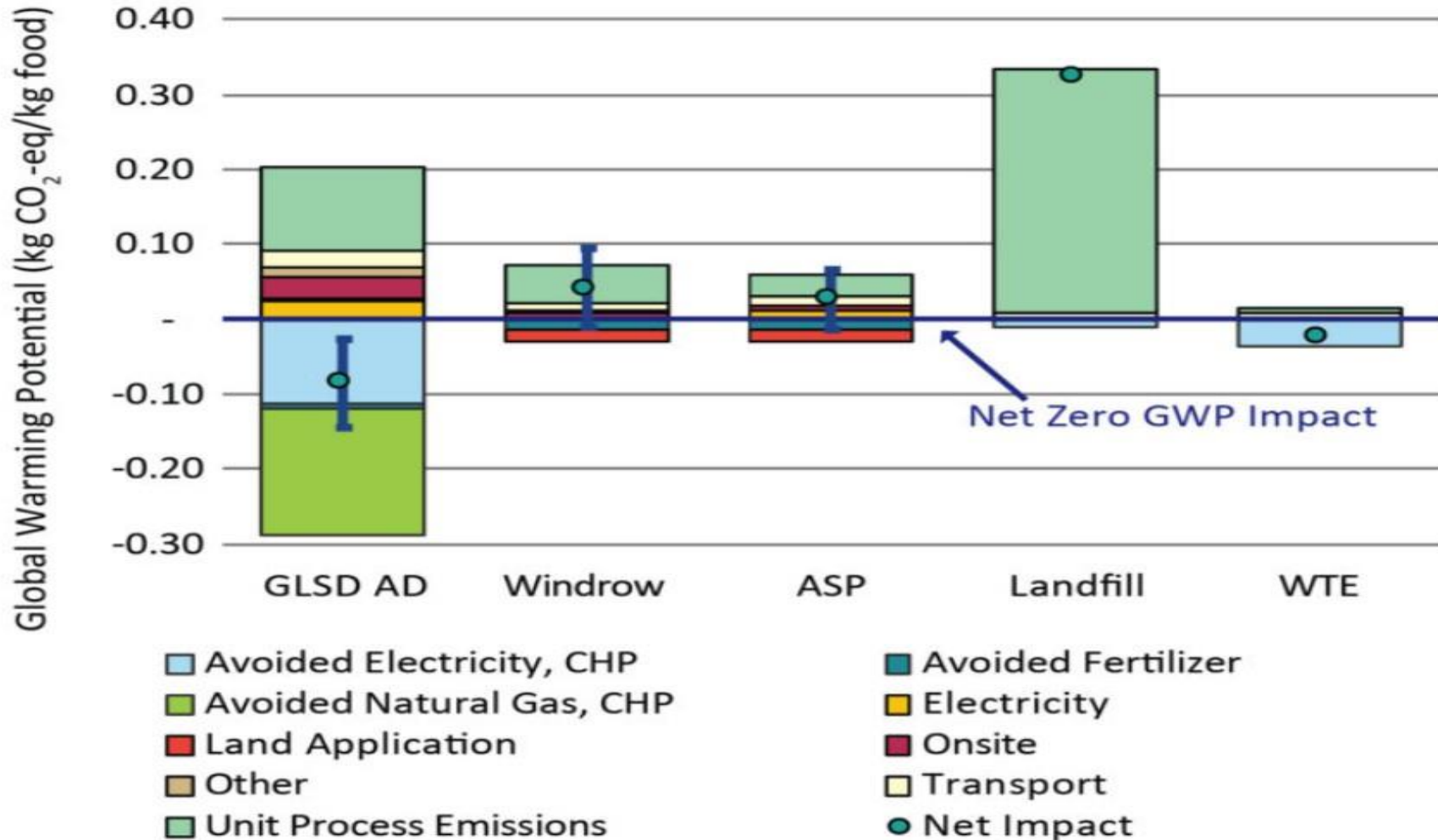


CRITERIA GLOBAL WARMING POTENTIAL

The global warming potential (GWP) results are characterized using factors reported by the Intergovernmental Panel on Climate Change (IPCC) in 2013 with a 100-year time horizon.

Avoided Electricity, CHP
Avoided Natural Gas, CHP
Land Application
Unit Process Emissions
Avoided Fertilizer
Electricity
Transportation

CHP: combined heat and power



CONCLUSION

"Results also show AD's potential to outperform composting, landfills and WTE facilities in most environmental impact categories. The benefits of AD are largely tied to biogas energy recovery, and the fact that, like composting, AD recycles a fraction of nutrients in food waste for subsequent agricultural use."



Other Thoughts

- Land Use in regards to space and capacity is not referenced explicitly in the study.
- Timeline variation between AD/Compost
- AD process variation
- AD Eutrophication via fertilizer is a concern, this is also a concern in composting but not mentioned.



THANK YOU!



FOOD WASTE + FOOD RETAIL

A presentation for Cambridge RAC

By member Catrina Damrell

March 10, 2021



WHY FOOD RETAIL/GROCERY

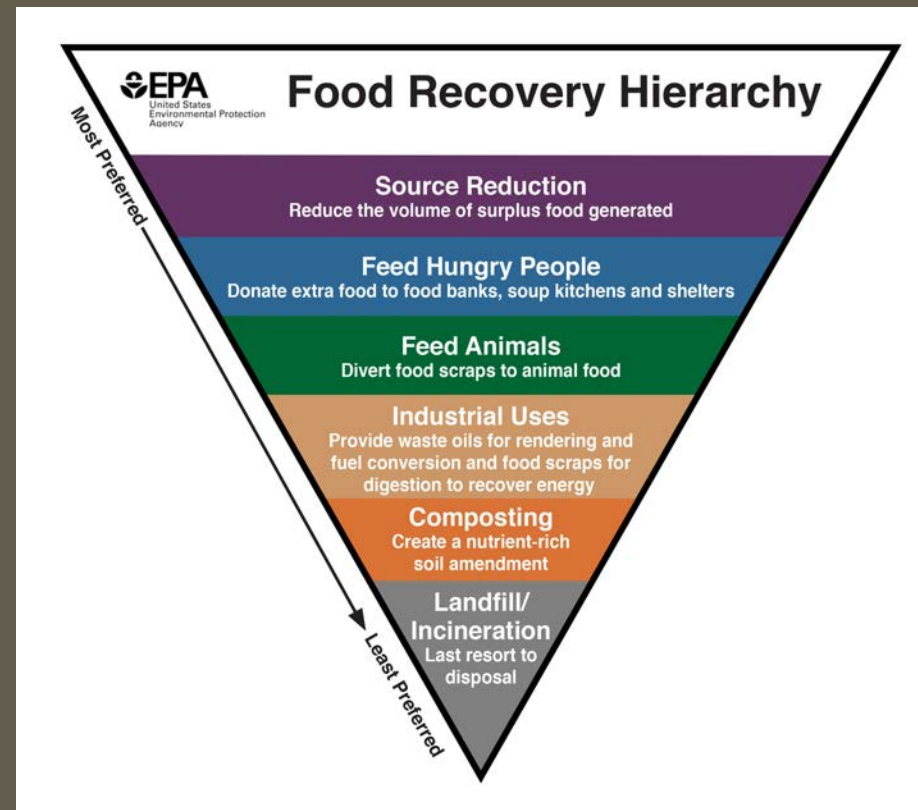
- 30% of food wasted in US happens at grocery stores*
- Pre-covid: Americans go to the grocery store 2x per week
- \$1,300 annually spent on food that goes uneaten**



*Reference: <https://www.feedingamerica.org/our-work/our-approach/reduce-food-waste>

**Reference: <https://www.washingtonpost.com/climate-solutions/2021/02/25/climate-curious-food-waste/>

EPA FOOD WASTE HIERARCHY



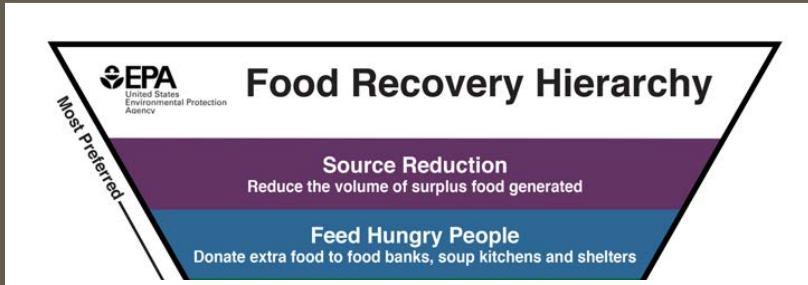


SOURCE REDUCTION

- Seasonal / local sourcing
- Supply chain
 - Example: Apeel Sciences
- Technology: data + AI
 - Example: Phood Solutions, Inc.

Meet Phood X





FEEDING HUNGRY PEOPLE / REPURPOSING SCRAPS

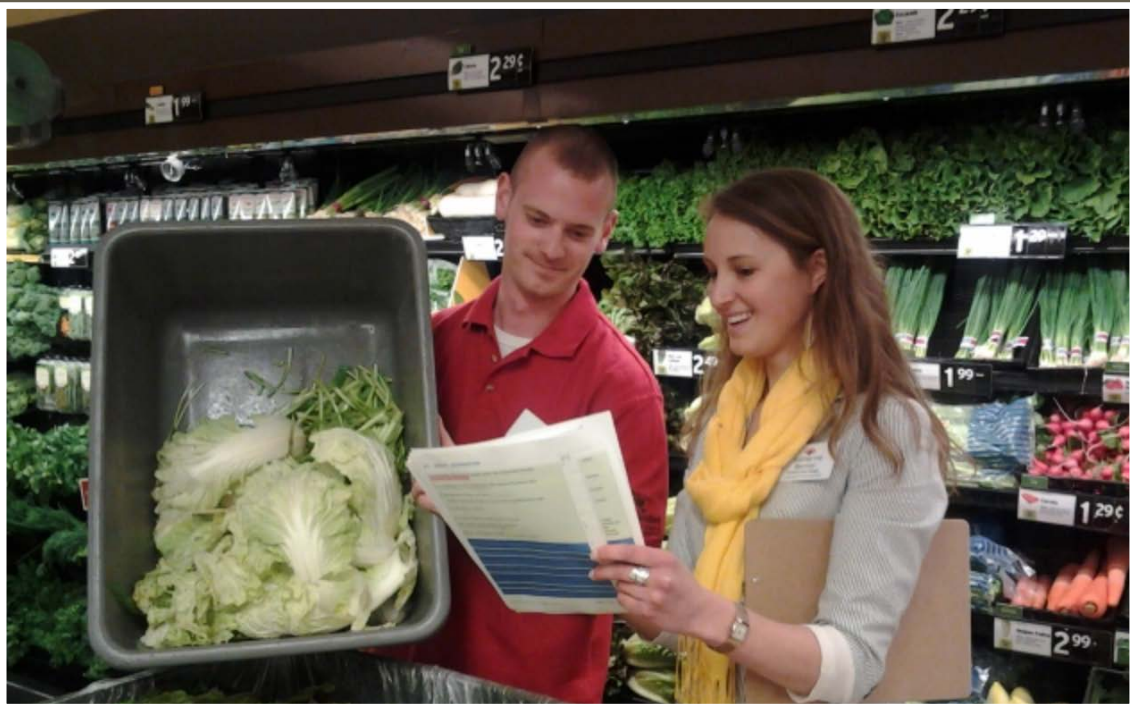
- Local community support
- Food banks, churches, etc.
 - Example: Nonprofits / Start ups linking grocery to food banks
- Grocery, bakery departments
- Good Samaritan Food Donation Act of 1996

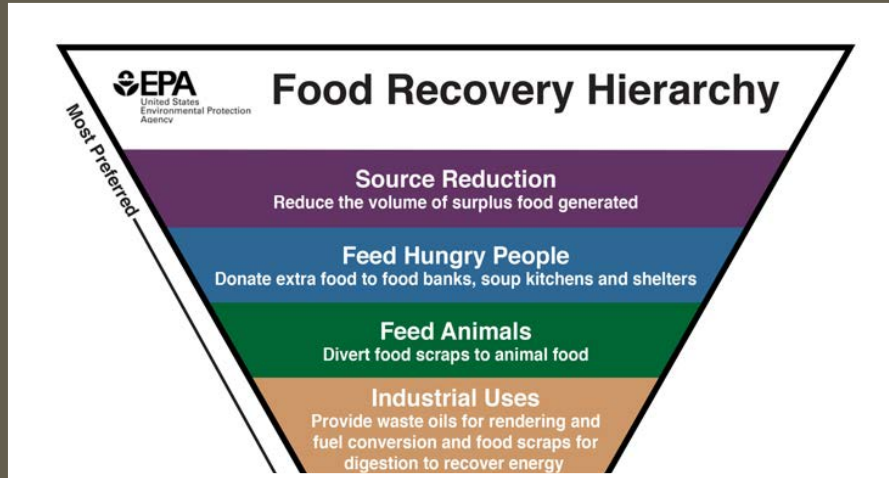




FEED ANIMALS

- Local community support
- Animal farmers: pigs
- Cattle feed

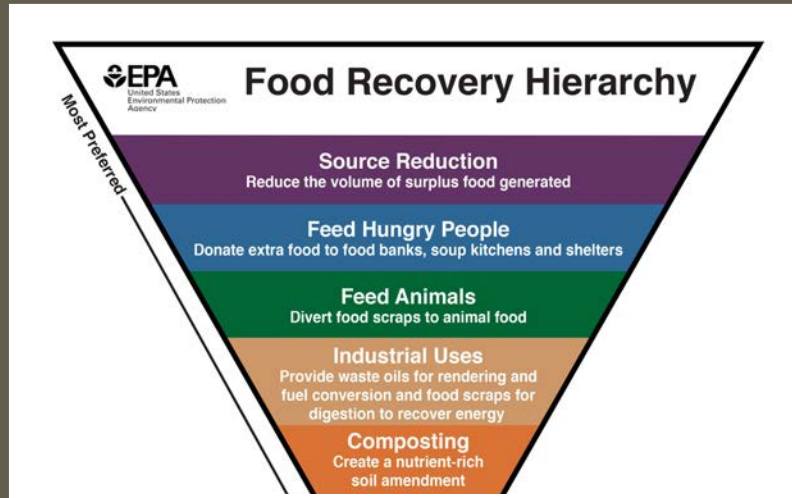




INDUSTRIAL USES

- Anaerobic digestion
- Energy!
 - Grind2Energy
 - Exeter Energy / Agricycle (Maine)

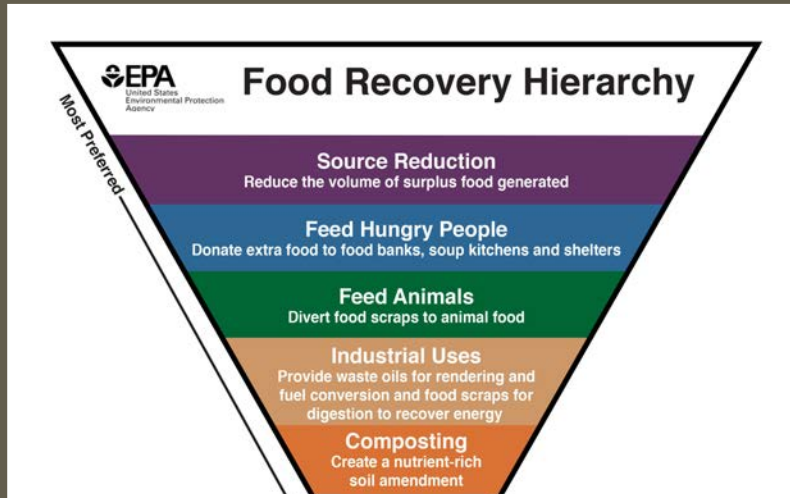




- Local community support
- Waste into revenue
 - Stores sell compost

COMPOST





- Avoiding contamination
 - Consistent training
 - Operational tricks
 - Creativity
- Corporate communication
 - Revenue creation
 - Reduce waste mgmt. costs

OPPORTUNITIES



REFERENCES + RESOURCES

- The Ratio Institute: ratioinstitute.org
- Feeding America + food waste stats: <https://www.feedingamerica.org/our-work/our-approach/reduce-food-waste>
- [Washington Post article: Fixing US Food Waste will Help Solve Climate Change](#) Feb 25, 2021
- Food Recovery Network: <https://www.foodrecoverynetwork.org/frv>
- EPA Food Recovery Challenge: <https://www.epa.gov/sustainable-management-food/learn-about-food-recovery-challenge-frc>
- ReFED: <https://refed.com/>
- Food for Free (here in Cambridge): <https://foodforfree.org/>