**Post 5 – Current Topic 2021-2022**

# Organic Waste Reduction, Reuse and Organics Recycling

**Connecticut**

1. What is "organic waste (ie organics)" vs. food scraps?
2. What is organics recycling?
3. Does Connecticut require 'organics' or food scraps to be collected for recycling?
4. What is the food waste hierarchy?
5. What is food recovery?
6. What is food waste *prevention* and how is it different from food waste *diversion*?
7. What is composting?
8. What is anaerobic digestion?

**In Connecticut…**

Based on the 2015 Connecticut Municipal Solid Waste Characterization Study, about 33 percent of the residential waste stream (nearly one million tons per year) consists of food scraps, yard waste and other organic material commonly referred to as organics. Connecticut's waste characterization results are consistent with other northeastern states' studies performed both before and after Connecticut's 2015 study.

Prevention, separation, collection and diversion of all organic materials provides the largest opportunity to reduce waste and increase diversion and recycling to move toward a more sustainable and self-sufficient waste management system in Connecticut.

Efforts to divert food scrap in Connecticut should be consistent with EPA's Food Recovery Hierarchy. When food is produced and not consumed, that waste reflects a flaw in the food system. Wasted food is a matter of wasted resources. All food system inputs - water, labor, transportation, pesticides and other agricultural chemicals, soil and nutrients - are all lost if food waste is not prevented or diverted for other uses. Food waste occurs at every stage of production and throughout the supply chain; "EPA estimates that 63.1 million tons of food waste was generated in the commercial, institutional, and residential sectors in 2018, which is 21.6 percent of total Municipal Solid Waste (MSW) generation".

Reducing food waste is an upstream solution; environmentally-favored diversion and disposal options are downstream solutions to dealing with wasted food and other organics. Properly using purchased foods at the commercial and residential level will greatly reduce the need to dispose of food wastes. However, food scraps will always be generated when preparing and manufacturing foods; eggshells, coffee grounds, onion skins, and other non-edible parts of foods will always need to be managed.

The environmentally-appropriate management of food waste and organics is key to optimization of the resource of food waste. Saving and recovering food for its nutritional

value for people and animals is an underutilized strategy that can significantly reduce infrastructure management needs and provide for a more equitable social and environmental outcome of the resource.

Composting food scraps and yard waste can provide added nutrients to our soils and is a method of disposal that contributes lower methane emissions than waste-to-energy disposal. Off-site management of organics can raise some logistical and cost issues, all of which are reconcilable with scalable local, regional and statewide infrastructure to minimize disposal needs. Food waste not removed from the municipal waste stream in Connecticut will predominantly end up at a waste-to-energy combustion facility, where it has a low BTU value due to its high moisture content and thereby produces very little electricity, or it is transported to an out-of-state landfill.

Wasting food also links with social issues. We are experiencing a paradox between food waste and hunger: Large quantities of edible food are being wasted while we have residents in Connecticut and across the country experiencing food insecurity. Food insecurity is when people do not have access to enough nutritious food for an active, healthy lifestyle.

In 2019, 10.5 percent of households in the U.S. experienced food insecurity; meaning they did not have access to adequate food due to a lack of money or other resources. With the COVID-19 pandemic, there are new and urgent food security issues that continue to unfold.

The UCONN Rudd Center for Food Policy & Health's work in the area of food security includes research on federal food assistance programs, as well as initiatives addressing food security in other sectors, including the charitable food system such as food banks, food pantries and food recovery efforts.

## EPA Food Recovery Hierarchy

The EPA Food Recovery Hierarchy provides a framework that sets the priority of needing to prevent food from being wasted to identifying best methods on managing excess food or food scraps.


### Preventing Wasted Food at Home

Currently, American families throw out approximately 25 percent of the food and beverages we buy, adding up to a cost of $1,365 to $2,275 a year for the average family of four. (**Source**: "American Wasteland: How America Throws Away Nearly Half of Its Food" by Jonathan Bloom.)

Simple tips to reduce waste at home:

- Plan before you shop. Plan meals and make a shopping list before you head to the store and check your fridge and pantry to assess what you have before you buy more. Websites such as Recipe Key generate recipes based on items already in your pantry.
- Don't shop on an empty stomach. Stick to your list when you are at the store. Shopping when hungry makes it more likely that you will be tempted to buy unhealthy foods and to buy more food than you need.
- Start small. Try not to serve yourself too much to start with, and then return for seconds if you are still hungry. The average dinner plate has increased in size 36% since 1960. Larger plates make correct portions seem smaller. Read more about the Small Plate Movement.
- Be a conscious cook. The Love Food Hate Waste serving size calculator suggests how much food you need to get your serving sizes right for each meal – and to keep food out of the trash.
- Eat your leftovers. Ask the restaurant to bag your leftovers and freeze them if you don't have room in the fridge. With increasing portion sizes, restaurant plate portions can equal enough food for two or more meals. According the Natural Resources Defense Council, only about half of Americans take leftovers home.
- Understand date labeling. The federal government does not regulate "Sell-by" and "Use-by" dates. Such terms are not an indicator of food safety, but rather of a manufacturer's suggestion for "peak quality." Understanding that most foods can be consumed after these dates can reduce waste at home. (See fact sheet on Connecticut Food Donation: Date Labeling Laws.)

> *"The most remarkable thing about my mother is that for thirty years she served the family nothing but leftovers. The original meal has never been found."*
> —Calvin Trillin

**Preventing and Reducing Food Waste at School (K-12)**

The Connecticut Green LEAF Schools program is a collaboration with CT Outdoor & Environmental Education Association (COEEA) and EdAdvance and is supported by the CT Departments of Education, Energy and Environmental Protection, Public Health, and Construction Services, as well as many environmental and educational organizations to promote green and healthy schools for all.

All K-12 public and private schools and school districts are welcome to be part of this important statewide initiative to grow greener. We recognize that each school starts at a different point. Whether you are just starting out or are far along the path to becoming an exemplary green school, what matters is your commitment to growing greener. We

are here to provide resources and support as you progress in your efforts towards sustaining growth as a CT Green LEAF School.

The Center for EcoTechnology (CET) helps people and businesses save energy and reduce waste. CET has been a leader in the wasted-food reduction and diversion movement for more than 20 years, implementing some of the first wasted food composting programs in the country, and contributing to effective public policy. Now they are helping Connecticut schools with state-specific resources, program design & implementation services, and more! See here for more information on CET and to take a look at a case study here in CT (Wilton)!

**Donating Food and Food Rescue Programs**

Other types of food rescue programs often focus on recovering perishable and prepared foods and distribute food directly to agencies that serve hungry people. Food rescue groups operate on a smaller scale than food banks, relying mostly on volunteers who deliver food directly from a retailer to an organization such as a food pantry. Rescue groups can be found in communities and universities across the country.

Some examples in Connecticut include:

- Food Rescue US (Fairfield County, Northwest CT, Hartford) Food Rescue US recovers and distributes fresh foods from supermarkets as well as surplus food from restaurant kitchens.
- Haven's Harvest (Greater New Haven) Haven's Harvest recovers and distributes food from supermarkets, institutions and food manufacturers
- Warrior Food Recovery (Eastern CT State University)

**Why Donate Food?**

There are several reasons why it makes sense for a business to donate food:

- Tax deduction - The 1976 Tax Reform Act allows companies to deduct costs associated with donating food to nonprofit organizations.
- Cost savings - Reducing the amount you throw away is reflected in your disposal costs.
- Inventory control - Food donations help reduce surplus of hard-to-move inventory that cannot be sold.
- Sustainability - Support the local community, reduce waste and recover materials for reuse.

**Legal Fact Sheets**

- Connecticut Food Donation: Date Labeling Laws
- Connecticut Food Donation: Liability Protections
- Connecticut Food Donation: Tax Incentives for Businesses
- Connecticut Food Donation: Feeding Food Scraps to Animals

## Gleaning Crops from Local Farms

Gleaning is the practice of harvesting remaining or leftover crops in a field after a farmer has harvested what he or she plans to use and sell. This practice of recovering food from farms dates as far back as the Old Testament and is practiced by many cultures and countries.

Gleaning can be conducted in organized groups, which may transport the food to a food bank or other donation center, or it can exist on a more informal basis—for example, when a farmer has a relationship with a neighbor who picks leftover crops for personal use.

Food losses at the farm occur in one of two ways - either the food is never harvested, or it is lost in the process of transporting it from farm to retail. Due to changing market demands and labor shortages, sometimes produce is never harvested and left in the farm fields. Farmers may plant more than they can harvest in order to hedge against potential damage due to disease, pests, and weather. When a field is left unharvested, and is consequently plowed under, it is referred to as a "walk-by."

Efforts to recover "walk-by" food from farms can reduce the amount of food that is plowed under and give the food to people in need. Interested in getting involved in gleaning? Contact your local food bank, Foodshare, or the Connecticut Food Bank and learn more when you check out USDA's Let's Glean Toolkit.

## Feeding Animals

Where reducing food waste at the source is inadequate, the next best thing is to divert edible or salvageable food to food banks and food rescue programs. When feeding people is not possible, then feeding animals is the next best option, followed by industrial uses then composting, and finally, landfilling or incineration as the last resort.

## Composting and Organics Recycling

Organic materials that are source-separated from the trash are highly recyclable and should be thought of as a resource, not a waste. Significant increases in recycling rates can be achieved through composting and other organics recycling efforts. Connecticut DEEP has successfully focused efforts on establishing large-scale leaf composting facilities, promoting home composting and grasscycling, and sponsoring pilot programs to compost organics at schools and other institutions. These programs have helped keep food scraps, yard trimmings and grass out of the waste stream, reduce waste handling and disposal costs, return valuable nutrients to the soil, and reduce the need for chemical fertilizers, thereby decreasing non-point source pollution.

Connecticut has a history of organics recycling dating back to the late 1980's when the first recycling laws and regulations were passed, and leaves were designated as a mandatory recyclable item. Next on the horizon, the Department will be encouraging the commercial and institutional generators of organics, such as grocery stores, food processors, and universities to implement food scrap recycling programs, and also working toward encouraging the development of manufacturing facilities to turn those organics into compost products, clean energy, animal feed, and liquid organic fertilizer.

**Composting at Home**

By composting kitchen scraps and yard trimmings at home, and leaving grass clippings on the lawn, the volume of garbage you generate can be reduced by as much as 25%! Composting and grasscycling is practical, convenient and can be easier and less expensive than bagging these wastes and driving them to the transfer station, or paying a landscaper to take them away. Leaves and grass clippings are required to be recycled in Connecticut, and composting and grasscycling are great ways to comply.

- "Turning Your Spoils to Soil" Home Composting Video (CT DEEP)
- "Composting Has A-Peel" Home Composting Brochure (CT DEEP)
- Home Composting Fact Sheet

Another option for leaves is to leave them on the ground. The layer of leaves is important cover for many invertebrates, and these invertebrates are an important source of food for birds, frogs and salamanders. Most butterflies need that leaf layer to complete their life cycle.

- Leave the Leaves! Plea from the Xerces Society for Invertebrate Conservation

**Composting at School**

- Eastern Middle School, Greenwich
- School Composting Manual Connecticut DEEP funded the production of this manual to provide a model for Connecticut schools to help them reduce their waste steam, increase recycling and to teach students about responsible waste management and the environmental advantages of composting. In the manual, you will find strategies for initiating a compost plan, bin design, routine steps of the composting operation, promotional activities, as well as an exhaustive section on lessons and resources. Although written specifically with K-12 schools in mind, the manual could be applicable to other small-scale institutional settings.
- K-12 Composting Resources

**Food Scraps Collection at Transfer Stations**

- Darien
- Glastonbury

- Housatonic Resources Recovery Authority (New Fairfield, Newtown, Redding, Ridgefield)
- Mansfield

**Community Composting**

- Expanding Community Composting in Connecticut (May 2019 webinar)
- Peels & Wheels Composting

**Anaerobic Digestion**

Anaerobic Digestion (AD) is a process where microorganisms break down organic materials, such as food scraps and manure, in the absence of oxygen. It uses either dry/high solids or wet/low solids technologies which produce biogas and a solid residual called digestate. The biogas is comprised primarily of methane and carbon dioxide, and can be used as a source of energy similar to natural gas. The digestate can be composted and used as a soil amendment. The benefits of anaerobic digestion include renewable energy generation, greenhouse gas emissions reduction, and waste diversion.

AD has been used in Europe and Canada for decades. With the advancements in technology, maturing recycling programs, energy incentive programs, and laws requiring organics (specifically food residuals) to be recycled, AD is now being seriously vetted as a solid waste management strategy in Connecticut and in the U.S.

- Anaerobic Digestion in CT, Including Pilot Programs Energize CT
- Anaerobic Digestion - Basic Information and Environmental Benefits (EPA)
- Quantum Biopower AD Facility in Southington, CT
    - What is Anaerobic Digestion Multi-stage Anaerobic Digestion Facility - Quantum Biopower

**CT Essential**

- Pack A Waste-Free Lunch | US EPA
- The Compost Story (6:46)
    - https://www.youtube.com/watch?v=bqDQD8cvO5Y&list=PL7KFY2SIjTau-dTdHeiWrMMC1kMAsmG_c&index=23&t=72s
- Guide for Connecticut Schools: Donating Food CT-School-Food-Donation-Resource.pdf (cetonline.org)
- Home Composting – Turning Your Spoils to Soils (16:56)
    - https://www.youtube.com/watch?v=L5WiKIEe17c&list=PL7KFY2SIjTau-dTdHeiWrMMC1kMAsmG_c&index=27&t=17s

**CT Good Resources**

- Love Letter to Food video (3:22)

- Expired? Food Waste in America video and discussion guide (5:26)
  - Expired-Discussion-Guide_Oct-2016.pdf (notreallyexpired.com)
- The Big Waste video; inefficiencies in the food system (10:15)
- CT Compost Video Series (2020)
  - Whimsey Brook Farm (6:58) https://www.youtube.com/watch?v=3IOXDMeKADE&list=PL7KFY2SIjTauMbYuLYbO7LMGVw84fII97&index=1&t=9s
  - Peels and Wheels (5:44) https://www.youtube.com/watch?v=JuDRnFfLzU4&list=PL7KFY2SIjTauMbYuLYbO7LMGVw84fII97&index=2&t=28s
  - Laurel Brook Farm (4:20) https://www.youtube.com/watch?v=DY_Hon_hEXE&list=PL7KFY2SIjTauMbYuLYbO7LMGVw84fII97&index=3
- Changes to CT's Organics Law: Are You in Compliance? - February 24, 2020 Speakers: Caren Harder, CT DEEP; Sergio Squatrito, Carla's Pasta; Coryanne Mansell, Center for EcoTechnology (CET); Sherill Baldwin, CT DEEP
- Food Scraps Diversion Guide for West Hartford Schools CET-Food-Scraps-Diversion-Guide-West-Hartford.pdf (cetonline.org)

**CT Resources if you want to know more/dig deeper**

- Food: Too Good to Waste; An Evaluation Report for the Consumption Workgroup of the West Coast Climate and Materials Management Forum (2016)
- CT Compost Conference Webinar Series (2020)
  - Farm Composting: Case Studies/Updates (1 ½ hours) (Partnership of CRC&D, CT NOFA, CT DEEP and others) - October 28, 2020 Speakers: Joe Wetteman, CT DEEP Water Permitting and Enforcement Division; James Hyde, USDA NRCS; Brian Jerose, Agrilab Technologies; Dr. Candace Benyei, Whimsy Brook Farm; Mike Carignan, Agresource, Inc
  - Composting: Feedstocks, Equipment, Siting, Infrastructure & Management (1 ½ hours)
    CT Compost Conference Webinar Series (Partnership of CRC&D, CT NOFA, CT DEEP and others) - October 7, 2020
    Speakers: Andrew Carpenter, Northern Tilth; Peter Moon, $O_2$ Composting; Jim Hyde, USDA NRCS
  - Advanced Composting: Building Quality with Recipes, Testing, Nutrient Management & Environmental Planning (1 ½ hours)
    CT Compost Conference Webinar Series (Partnership of CRC&D, CT NOFA, CT DEEP and others) - September 23, 2020
    Speakers: Domingo Medina, CT NOFA/Peels and Wheels Composting; Dawn Pettinelli, UCONN; Jim Hyde, USDA NRCS
  - Municipal Composting: Case Studies/Updates (1 ½ hours)
    CT Compost Conference Webinar Series (Partnership of CRC&D, CT NOFA, CT DEEP and others) - September 9, 2020
    Speakers: Coryanne Mansell, Center for EcoTechnology; Athena Lee

Bradley, Windham Solid Waste Management District, Brattleboro, VT; Doug Colter, City of West Haven; Jennifer Heaton-Jones, HRRA; Dave Aldridge, SCRRRA

- Different Scales of Composting: From Municipalities to Farms (1 ½ hours) CT Compost Conference Webinar Series (Partnership of CRC&D, CT NOFA, CT DEEP and others) - August 26, 2020
  Speakers: Robert Isner, CT DEEP; James McSweeney, Compost Technical Services; Coryanne Mansell, Center for EcoTechnology.

- Food Waste Assessment Tools The first step in reducing waste is to measure and track the amount, type of, and the source of food and packaging waste. The food waste & packaging prevention tool, cost estimator, and tracking log provided in this toolkit can help you perform a waste audit to gain critical information for making meaningful changes. (EPA)
- Food Too Good To Waste: A Toolkit to Reduce Household Food Waste (2016) The average family could save over $30/week ($1600 a year) by using this toolkit. When we throw away food, we're also wasting all the water, energy and other resources used to produce, package and transport food to our plates. (EPA Region 10; West Coast Climate and Materials Management Forum)
- Don't Throw Away That Food: Strategies for Record-Setting Waste Reduction (EPA)