Sustainable Organic Materials Management

May 11, 2020

@SJ_Program | #NJSustainabilitySummit

Announcements

More info on each initiative can be found in the rotating images at sustainablejersey.com

- **Certification Timeline Changes**
  - **Municipal –** Samantha, info@sustainablejersey.com
  - **Schools** – Veronique, lambertv@tcnj.edu
- **Energy Toolkits & Energy Efficiency Outreach Trainings** - Nancy, quirkn@tcnj.edu
- **Free Municipal Tech Coaching** – Lauren, skowronl@tcnj.edu
- **Census Response** – Samantha, info@sustainablejersey.com

Speakers

Fredrik Khayati

Environmental Specialist, Division of Solid and Hazardous Waste, NJDEP

Virginia Lamb

Groundwork Education & Consulting

Jamie Bruno

Urban Agriculture Cooperative

NJDEP Food Waste Update

MAY 11, 2020

NJ Food Waste Laws

- P.L. 2017 c.136 signed into law July 2017
- Established a goal of 50% reduction of food waste generated by 2030
- DEP tasked, together with Dept. of Agriculture, to develop and commence implementation of Plan to achieve the goal
- Three required public hearings held in September 2019

NJ Food Waste laws cont.

- P.L. 2017 c.210 – food waste guidelines for K-12 schools and higher education
  - Toolkits for food waste reduction strategies and composting
- P.L. 2020 c.24 – source separation of food waste for large generators
  - Applies to generators of more than 52 tons/yr.
  - Generators have 18 months to comply and NJDEP will develop guidance documents and other tools to help generators in the meantime
  - Early stages, DEP intends to hold full stakeholder process and to write rules implementing the statute (no timeline)

Composting Rules and Regulations

- Unless exempt, you need a Class C recycling facility approval or if you have innovative technology, an approval for a Research, Development & Design (RD&D) project (N.J.A.C. 7:26A-1.7(f))
- N.J.A.C. 7:26A regulates recycling in NJ
  - *Exemption: The recycling of source separated Class C recyclable materials that are generated on site, and processed exclusively at the point of generation into a product for sale and/or use off site (N.J.A.C. 7:26A-1.4)*

Composting Rules and Regulations cont.

- NJDEP is working on an expansion of the garden community exemption by rule to make it useable and practicable to people
  - The issue is the allowance of offsite materials

- For more information about composting regulations and RD&D:
  - NJDEP Bureau of Recycling and Hazardous Waste Management (609) 984 3438

NJDEP Food Waste Reduction Plan

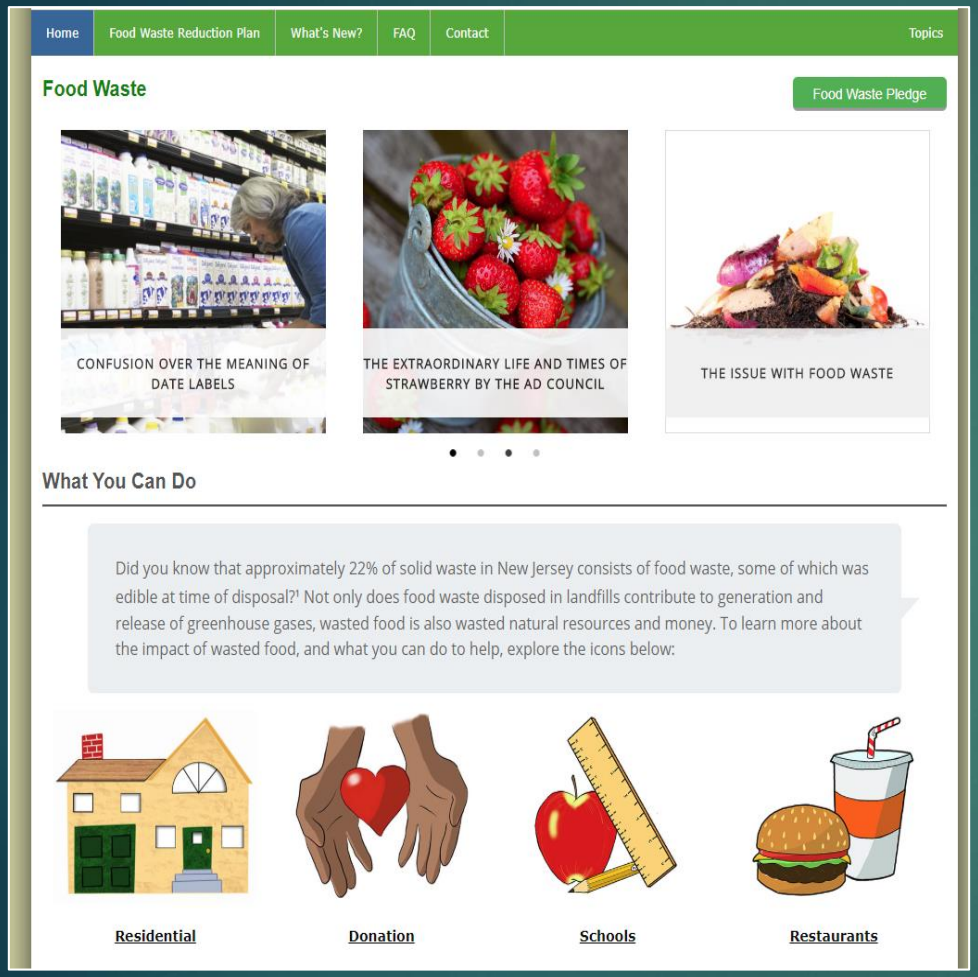
- Food waste generation = Disposal + Recycling
- No NJ data available, using studies from neighboring states and a Mercer county study to estimate state generation
- Estimated 22% of MSW stream consists of food waste
- In 2017, an estimated 1.46M tons of food waste were generated in NJ or approx. 325 pounds per person per year

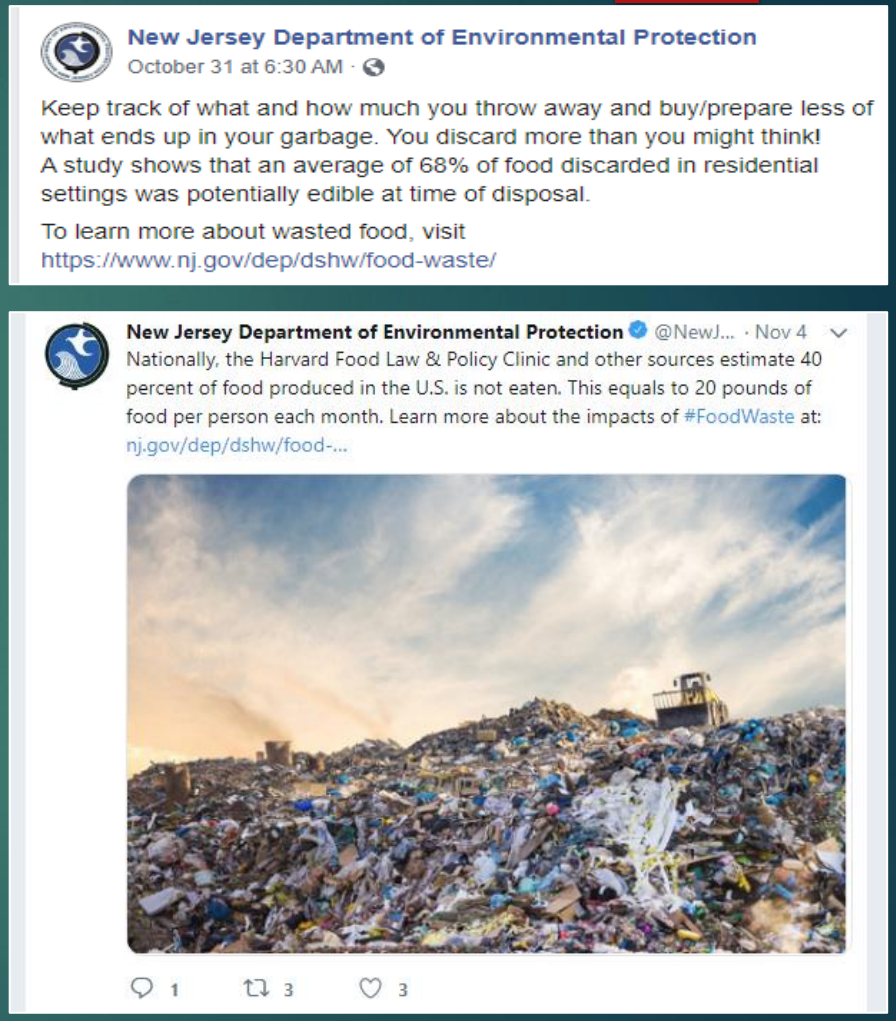
Plan Principles

- Prioritize attention and actions to sectors with highest potential benefit
- Use social media to promote existing and available information
- Identify and provide a platform for sector 'champions' to highlight and promote success stories
- Promote the use of waste tracking, analytics and metrics reporting

Short-Term Actions

- Request legislatively authorized NJ Food Waste Reduction Council with dedicated funding
- Raise awareness and educate the public about the issues of wasted food
  - Create recognition program
  - Educate about date labels
  - Create food waste reduction website
- Work with already established sustainability organizations
  - Sustainable Jersey actions


Home
Food Waste Reduction Plan
What's New?
FAQ
Contact
Topics
Food Waste
Food Waste Pledge
CONFUSION OVER THE MEANING OF DATE LABELS
THE EXTRAORDINARY LIFE AND TIMES OF STRAWBERRY BY THE AD COUNCIL
THE ISSUE WITH FOOD WASTE
What You Can Do
Did you know that approximately 22% of solid waste in New Jersey consists of food waste, some of which was edible at time of disposal?[1] Not only does food waste disposed in landfills contribute to generation and release of greenhouse gases, wasted food is also wasted natural resources and money. To learn more about the impact of wasted food, and what you can do to help, explore the icons below:
Residential
Donation
Schools
Restaurants


New Jersey Department of Environmental Protection
October 31 at 6:30 AM ·
Keep track of what and how much you throw away and buy/prepare less of what ends up in your garbage. You discard more than you might think! A study shows that an average of 68% of food discarded in residential settings was potentially edible at time of disposal.
To learn more about wasted food, visit https://www.nj.gov/dep/dshw/food-waste/
New Jersey Department of Environmental Protection @NewJ... · Nov 4
Nationally, the Harvard Food Law & Policy Clinic and other sources estimate 40 percent of food produced in the U.S. is not eaten. This equals to 20 pounds of food per person each month. Learn more about the impacts of #FoodWaste at: nj.gov/dep/dshw/food-...
1
3
3

Long-Term Strategies and Actions

- Implement recurring statewide waste composition audits
- Partner with colleges and universities
  - Through Recycling Enhancement Act Recycling Research Grant
- Organize food waste conferences or other information-sharing events
- Encourage the use of a standardized food waste measuring and reporting systems
- Encourage county involvement through county solid waste management planning process

Food waste reduction plan - next steps

- Review comments and finalize plan (completed)
- Submit finalized plan to DEP chain of command and Dept. of Ag for approval (in progress)
- Submit plan to Legislature (early summer 2020)

For more information

- Food waste website: https://www.nj.gov/dep/dshw/food-waste/
- School food waste guidelines: https://www.nj.gov/dep/seeds/sfwg/
- Follow DEP's Twitter and Facebook feeds
- Questions/comments:

  reducefoodwaste@dep.nj.gov

  NJDEP Bureau of Recycling and Hazardous Waste: (609) 984 3438

Backyard Composting 101

Today's agenda

- Composting as a waste reduction tool
- Composting and Compost Tea:

  Basics of making and using
- Troubleshooting
- Resources

Benefits of Backyard Composting

- Waste Reduction
- Greenhouse Gas Reduction (CO_2, CH_4)
- Organic Matter "Creation"

Waste Reduction

U.S. Household Trash Generation:

.75 ton/person/year (4.3 lbs./day)

- 28% is food/yard waste
- 40% of ***all*** food produced is discarded
- 1.3 M tons food in NJ
- *Increased home food waste with Coronavirus*
- *NJ Food Waste Recycling Mandate for large generators*

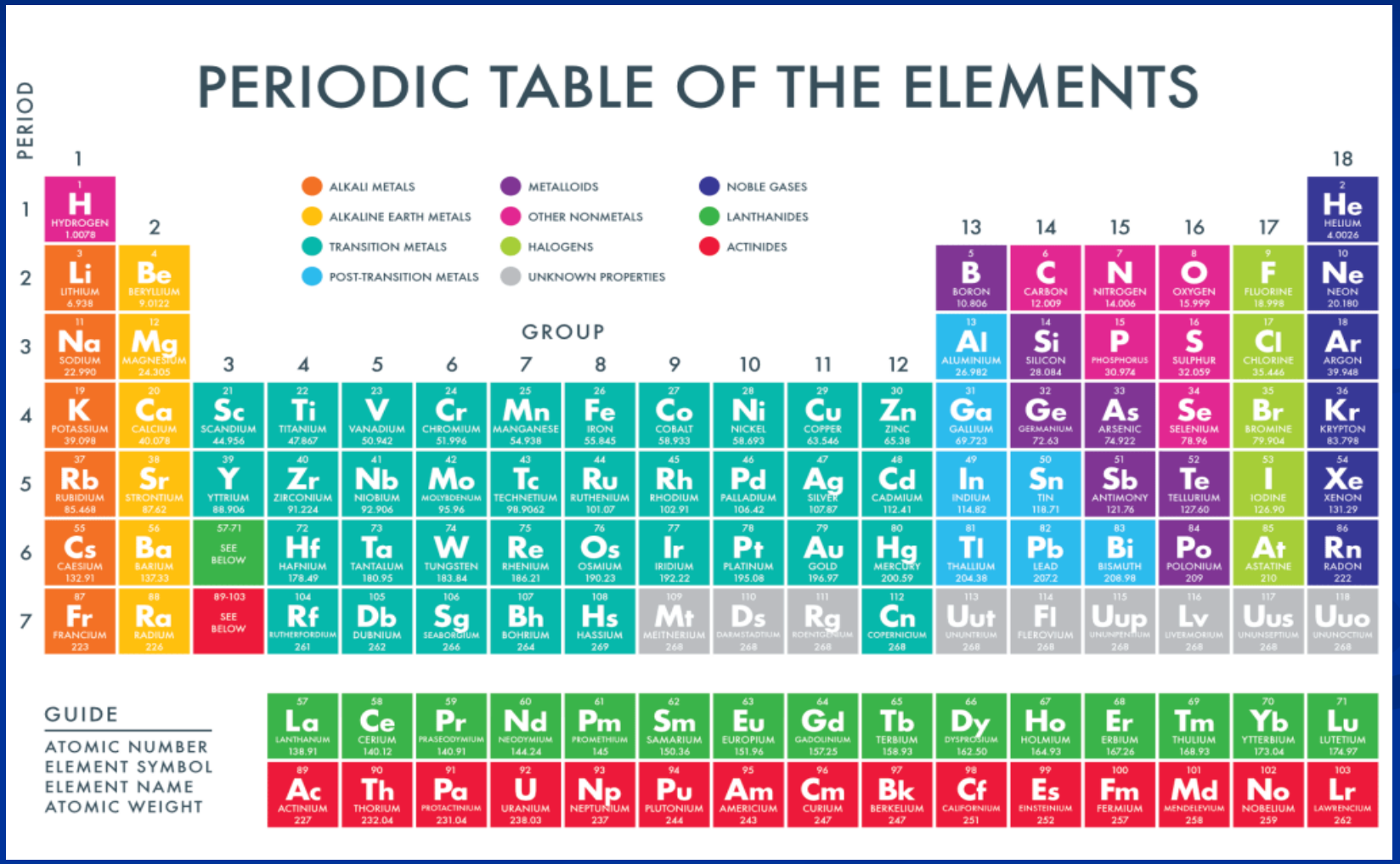
Greenhouse Gas (GHG) Reduction

Three fold:

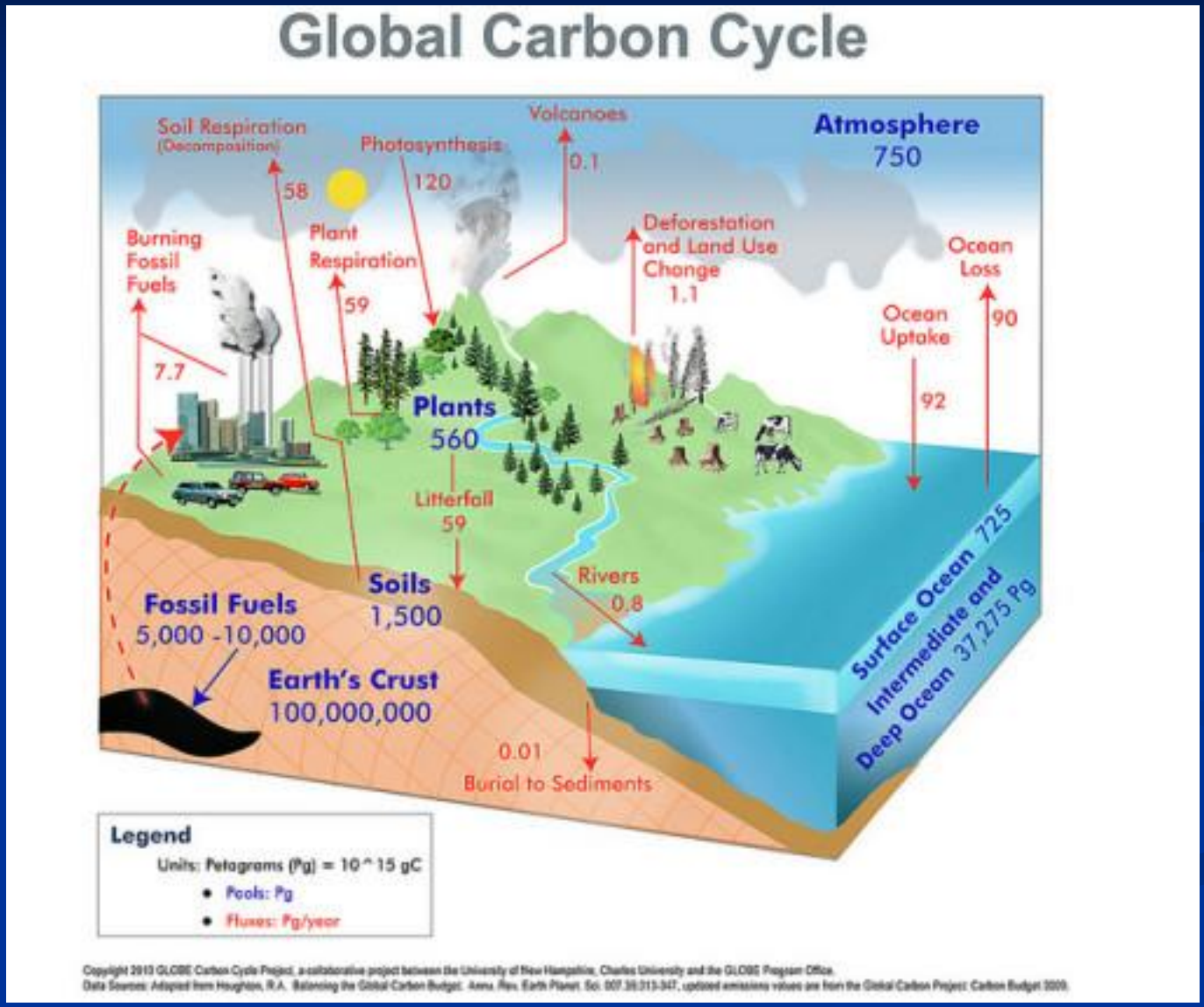
- Less garbage = fewer GHGs and other pollutants from incinerators and landfills (CH_4) .
- Composting locally eliminates vehicle emissions.
- Using finished compost increases soils' ability to store carbon.

It's Elemental!

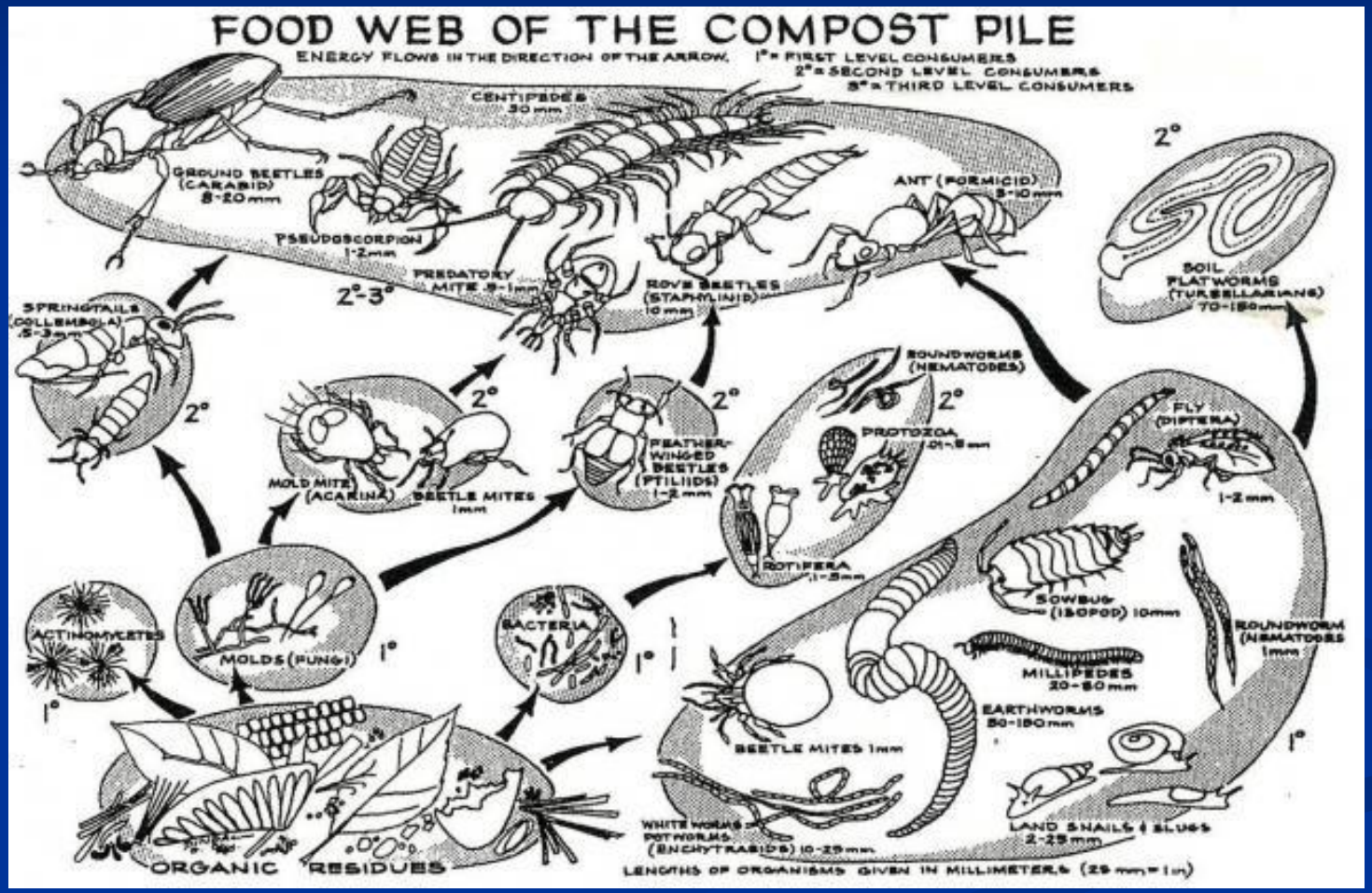
(Atoms → Molecules → Everything!)



Composting and Climate Change?



Composting offers an opportunity for restoration



What can you compost?

YES! ✓

COMPOST . . .

GREENS:

- fresh vegetable & fruit scraps
- egg shells (crushed!)
- cut flowers & green plants
- most garden & grass clippings
- coffee grounds & filters
- tea bags (no staples!)

BROWNS:

- fall leaves
- untreated straw
- shredded newspaper
- plant stalks, twigs, & branches
- untreated wood chips & shavings

NO! X

DO NOT COMPOST . . .

ANY OF THE FOLLOWING:

- cooked foods
- cheese & dairy
- meat & bones
- pet waste
- used tissues & paper towels
- produce stickers
- oils & greases
- glossy or coated paper
- treated or painted wood
- aggressive weeds & grasses
- poisonous or diseased plants

Learn more: ilsr.org/composting

ILSR

Think about your compost ingredients

Five Essentials of Composting

Carbon:Nitrogen (C:N) Ratio

Volume

Moisture

Aeration

Surface Area

1. Carbon:Nitrogen (C:N) Ratio

- Materials High in Carbon: "Browns" (2-3 parts)

  Dry, brown materials: leaves, straw, paper, woodchips, sawdust, cardboard

- Materials High in Nitrogen: "Greens" (1 part)

  Moist, fresh materials such as vegetative food scraps, garden waste, animal manures

Composting High Carbon "Browns" Only

(compensate for low N by adding moisture)

2. Volume: approximately 1 cubic yard

3. Moisture:

“as damp as a wrung out sponge”

4. Aeration:
Oxygen rich decomposition

5. Surface Area:

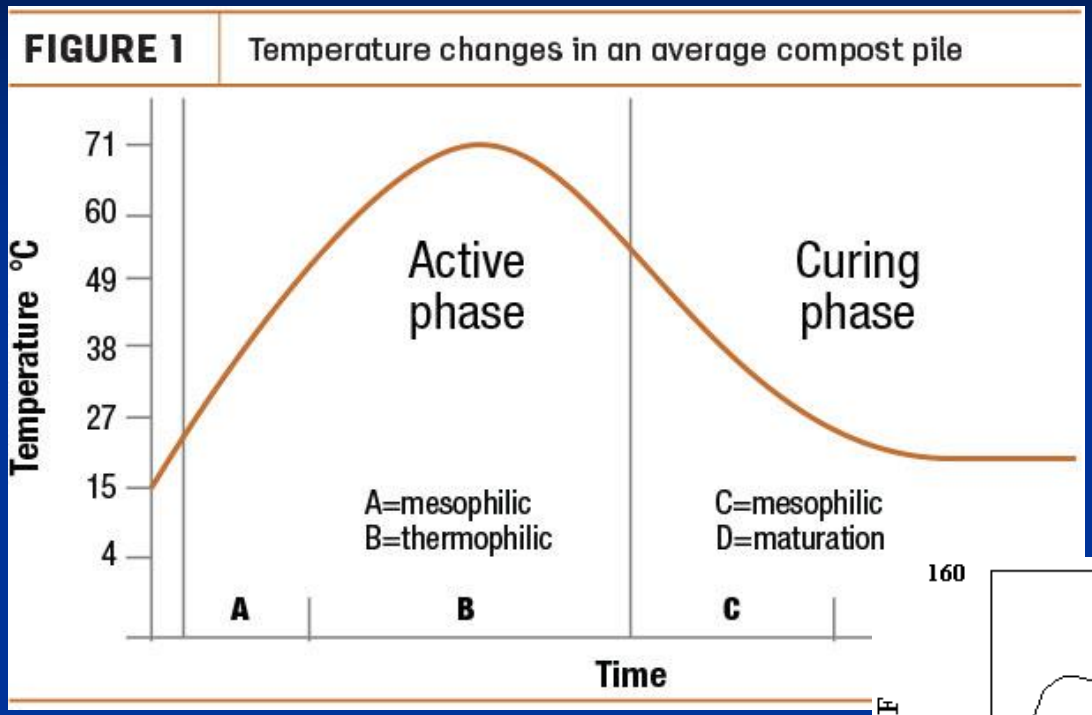
Smaller particles=faster decomposition

Backyard Composting Methods: Hot (batching) vs. Cool (layering)

Always cover greens with browns!

Typical Temperature Cycles

(Progressive Dairy, Canada; WCDS Ualberta, Canada)



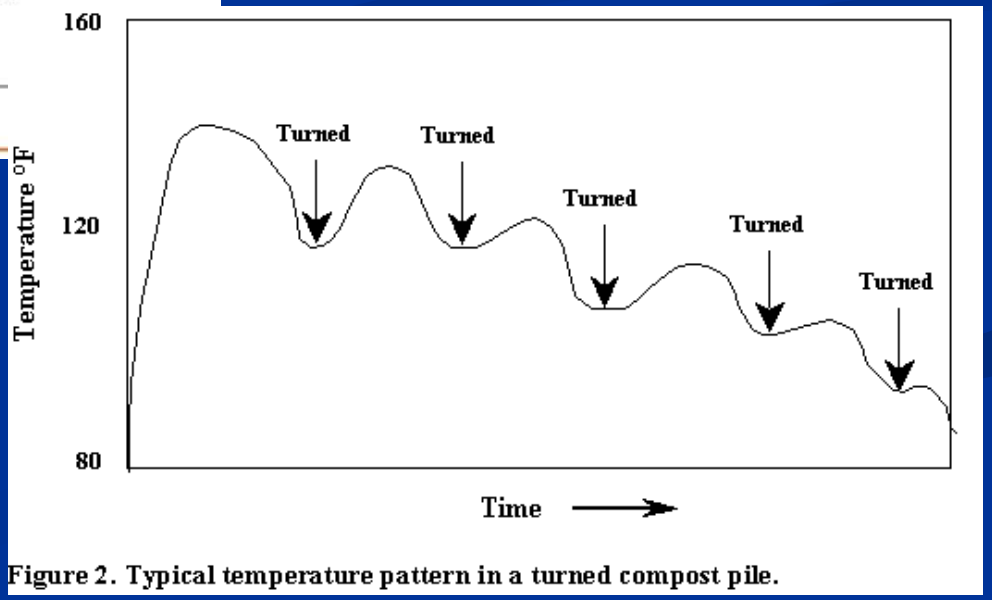


Figure 2. Typical temperature pattern in a turned compost pile.

Composting Systems: Open

Composting Systems: Enclosed

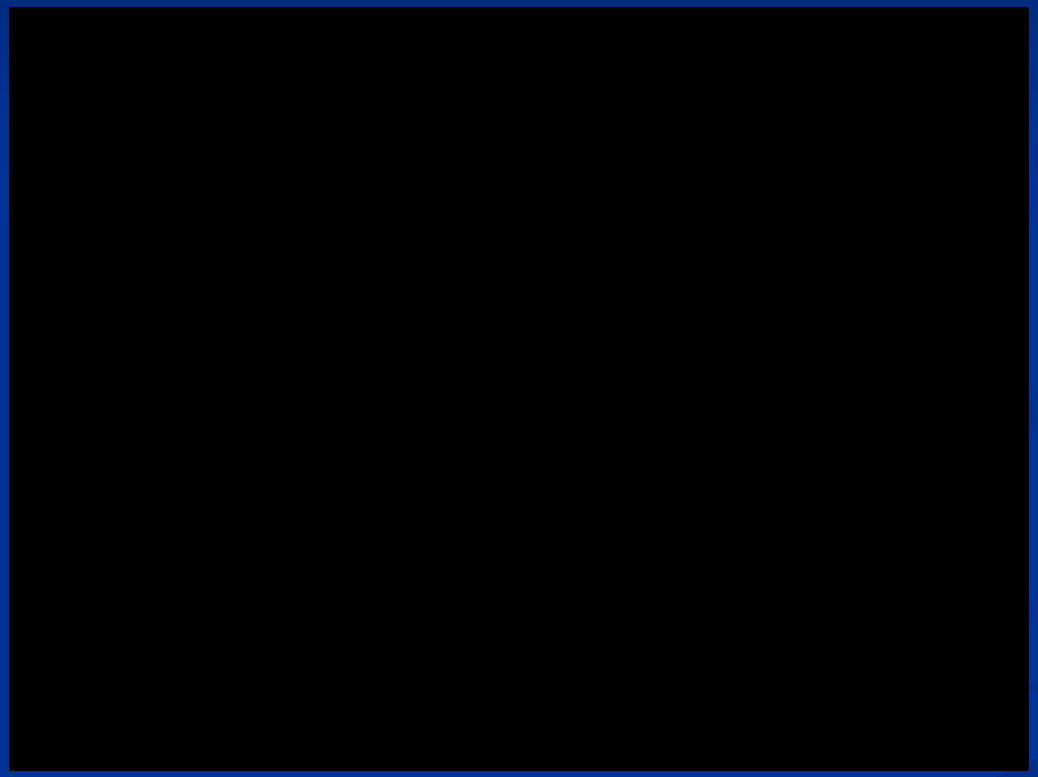
Compost Systems: Tumblers

Composting Tools:

- Compost Fork*
- Spade*
- Thermometer
- Turning tool
- Accelerators

*only essential tools

Demonstration



Compost Food Scraps Separately

Soil Incorporation and/or Worm Composting

Compost Troubleshooting

Problem	Solution
Bad odor	Add browns, aerate
Too dry	Add water, greens
Attracting animals	Check ingredient list, add barriers
Composting too slow	Sprinkle in grass clippings, mix

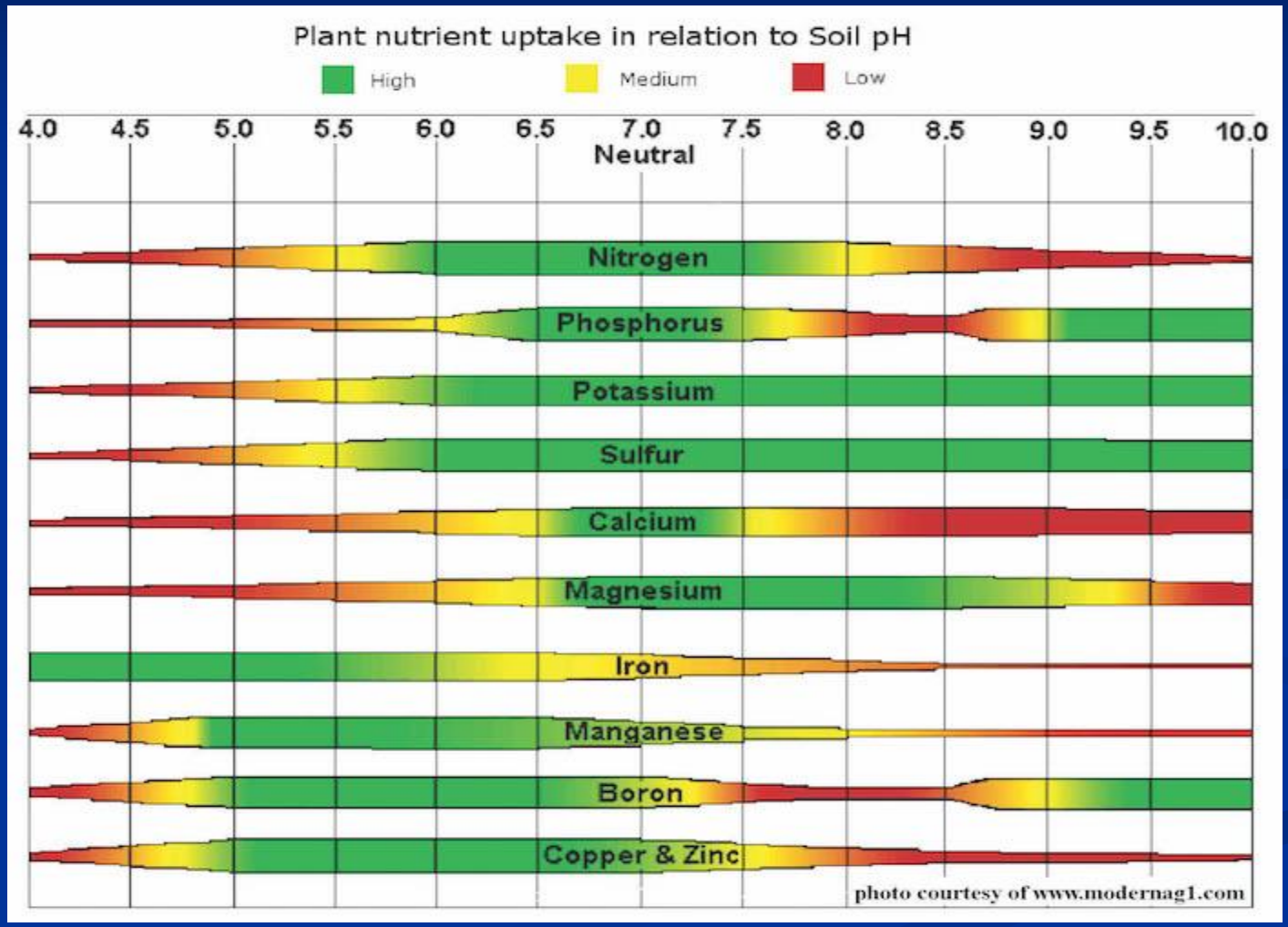
Using Finished Compost

(*80% reduction from original volume*)

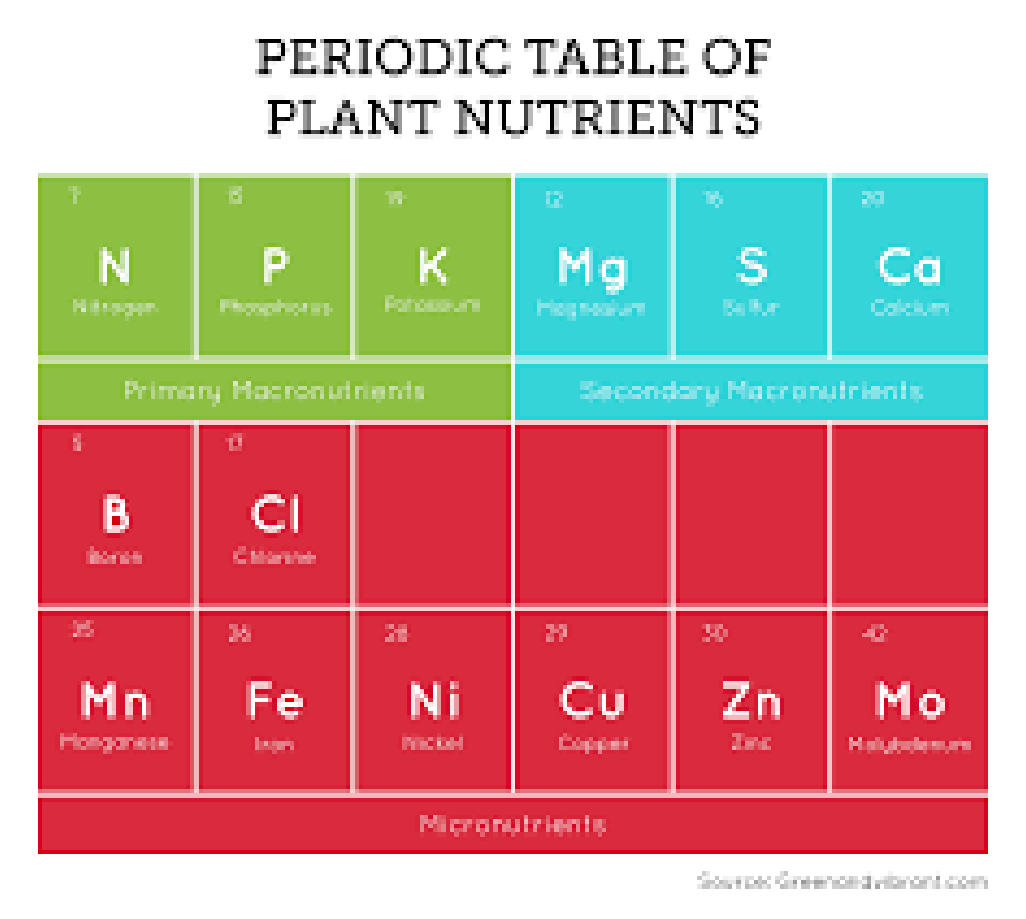
Benefits of Using Finished Compost

- Improves soil health and structure
- Making nutrients available to plants, reducing fertilizer need
- Moderates soil moisture and temperature, reducing plant stress
- Suppresses plant pathogens
- Increases soil carbon
- Neutralizes soil pH

pH and Nutrient Availability



Plant Nutrient Overview



Using Finished Compost

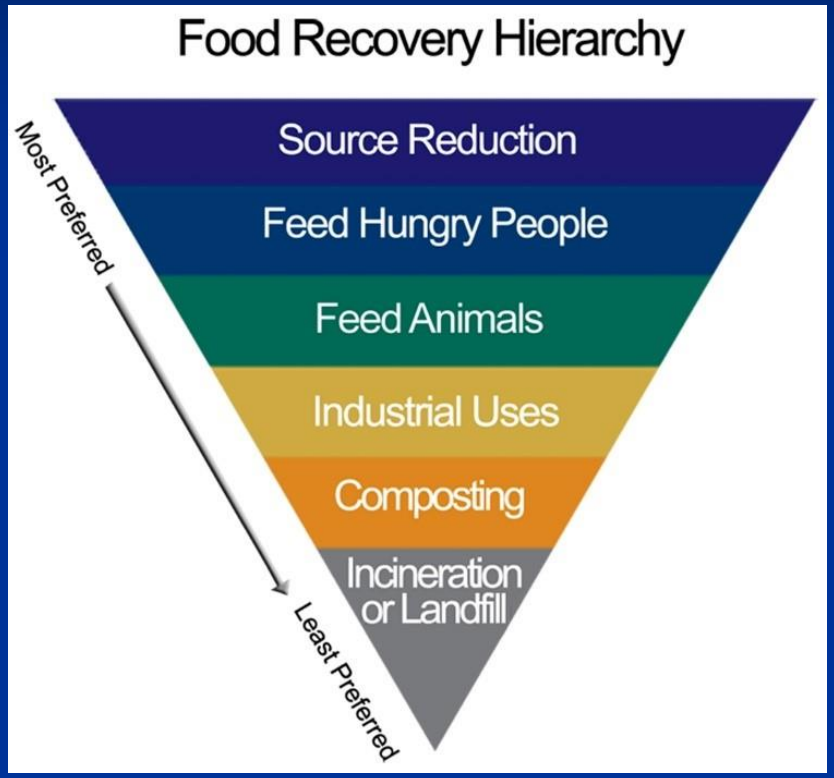
- Top or Side Dress
- Potting Mix
- Soil Incorporation (herbaceous plants only)
- Seed Starting Mix (mature compost)

Compost Tea

A great way to make a little compost go a long way!

- 10:1 ratio of compost to water
- Steep few hours to few days
  (Aerate if steeping longer)
- Antifungal properties
- Soluble nutrients for quick plant uptake

Think Organic Waste Reduction!



A Few Resources

Earth Machine Composters (Bulk quantities)

BrandBuilders, Jeffrey Brown

800-842-0527, jeffrey@brandbuildersllc.com www.mycompostersale.com

Institute for Local Self Reliance http://ilsr.org

Yes! In My Backyard: A Home Composting Guide for Local Government

Many excellent resources, webinars, posters, customized training, etc.

North Carolina State Extension

http://composting.ces.ncsu.edu

Questions?

Virginia Lamb
www.groundworkec.com
vlamb@groundworkec.com

groundwork
Education and Consulting

SUSTAINABLE ORGANIC FOOD WASTE MANAGEMENT

COMMUNITY GARDEN | URBAN AGRICULTURE PERSPECTIVE

JAMIE BRUNO - URBAN AGRICULTURE COOPERATIVE

URBAN AGRICULTURE COOPERATIVE

URBAN AGRICULTURE COOPERATIVE

- **Markets & Distribution**
  - - Food access, food empowerment
- **Community & Training**
  - - Training programs/ providing subsidy for: farm business, food safety, FSMA, Compost Operator training, SNAP/WIC trainings
- **Farm builds & composting**
  - - Compost advocacy, farm & garden builds for communities that want them

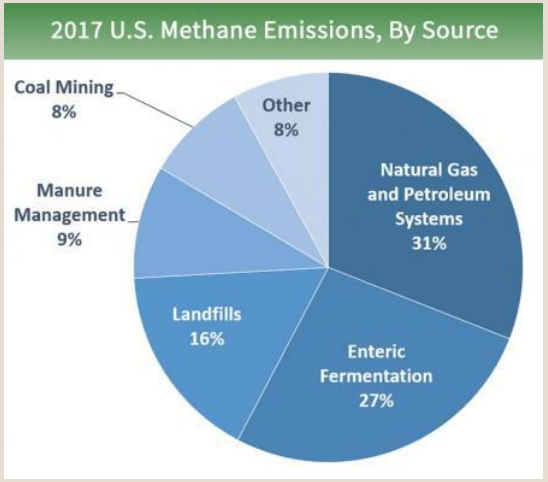
SOIL GENERATING
FOOD WASTE MANAGEMENT OPERATIONS
V
STATUS QUO

RED HOOK FARMS - NYC

EMISSIONS
LANDFILLS V COMPOST OPERATIONS

- **LANDFILLS**
  - 3RD LARGEST PRODUCER OF METHANE GAS
  - METHANE: GREENHOUSE GAS
    - 56X more potent then CO2
      - ANAEROBIC CONDITIONS → METHANE PRODUCTION → ODOR/POLLUTION

- **MICRO-MEDIUM VOL COMPOSTING SYSTEMS**
  - AEROBIC, OXYGEN-RICH SYSTEMS
    - NO-LOW ODOR, NO TO LOW METHANE
    - CARBON SEQUESTRATION



COMPOSTING GENERATES HEALTHY, NUTRIENT-RICH SOIL

- **TOPSOIL LOSS**
- 4.6 TONS / 92,000 LBS DEGRATED ANNUALLY
  - 9X THE NATURAL RATE OF REPLACEMENT
- **COMPOSTING**
  - REPLENISHES TOPSOIL
  - RESTORES AND REPLACES LOST NUTRIENTS
  - PREVENTS EROSION
  - FILTERS POLLUTANTS AND SLOWS WATER FLOW ON LAND
  - MARKET GROWTH → LESS RELIANCE ON HARMFUL SYNTHETIC FERTILIZERS → LESS NITROUS OXIDE

FINANCIAL BENEFITS

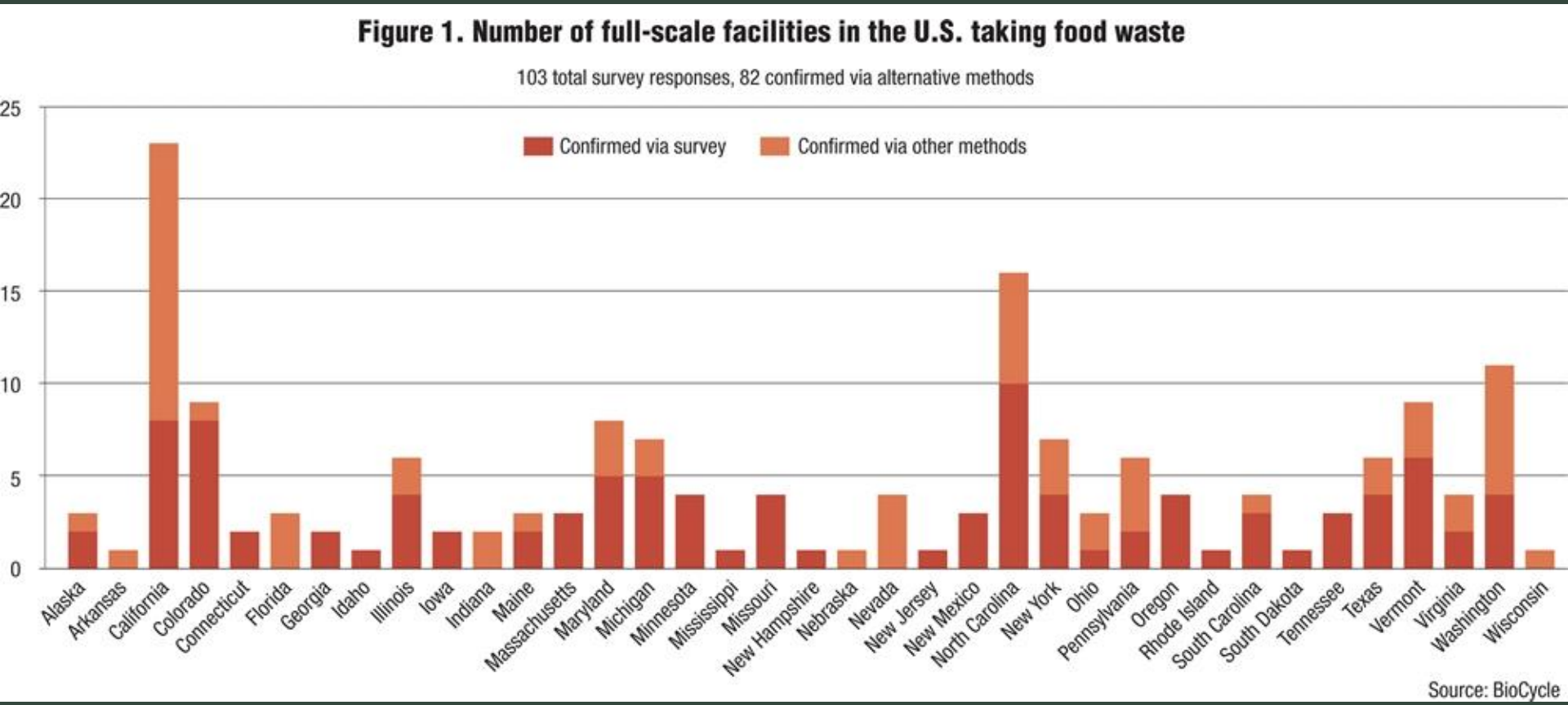
SAVINGS

- COMPOSTING & AEROBIC DIGESTION OPERATIONS COULD SAVE BETWEEN $15 - $22.5 MILLION.
- ADDITIONALLY, WITH A 10% DONATION AT SOURCE POINT (RECOVERY OF EDIBLE FOODS) THOSE SAVINGS FURTHER RISE TO 100 MILLION DOLLARS IN VALUE.

Table 9. Sensitivity Analysis Results

Scenario	Net Benefits (2016$)	
	All Compost	All AD
New Capacity (Primary) – hauling distances are generator-specific and average 10 miles	$ 15,210,485	$22,567,152
20-Mile Hauling Distance – hauling distance is 20 miles for every generator	$7,911,000	$15,267,668
50-Mile Hauling Distance – hauling distance is 50 miles for every generator	($13,433,525)	($6,076,858)
5% Food Donation – hauling distances same as Primary scenario	$55,021,646	$62,105,614
10% Food Donation – hauling distances same as Primary scenario	$94,840,378	$101,642,597
Note: Net benefits are defined as baseline costs minus policy costs, and are therefore presented as positive values.		

New York State Energy Research and Development Authority



FOOD WASTE COMPOSTING INFRASTRUCTURE IN THE U.S.

https://www.state.nj.us/dep/legal/get_rule.htm

STATE REGULATIONS: NJDEP DIVISIONS OF SOLID & HAZARDOUS WASTE & AIR QUALITY

- **PERMITTING**: LARGE FACILITIES, COSTLY, NOT RELEVENT FOR MOST SMALL-MID SIZED OPERATIONS
  - CLASS C RECYCLING CENTER
  - RESEARCH & DEVELOPMENT PERMIT (?)
- **EXEMPTIONS:** NJAC 7:26a-1.4(a)
  - VIA FORM: RULES 2, 21
  - SOURCE GENERATED ONLY

NJ: WHAT'S POSSIBLE ?

NJ: WHAT'S POSSIBLE?

DEDICATED SUPPORT FROM YOUR MUNICIPAL & COUNTY EXECUTIVES GOES A **LONG** WAY!

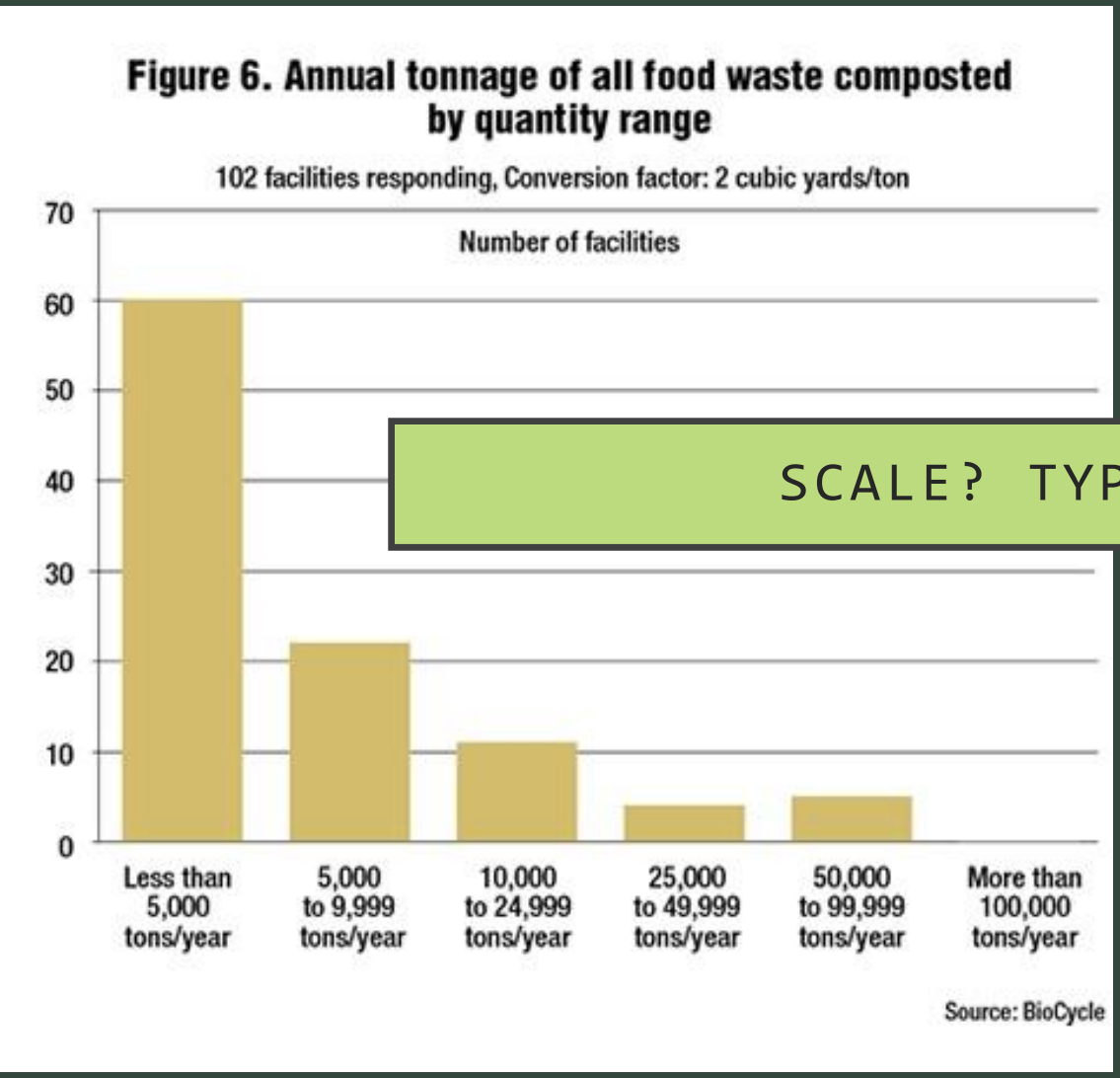


Figure 6. Annual tonnage of all food waste composted by quantity range
102 facilities responding, Conversion factor: 2 cubic yards/ton
Number of facilities
70
60
50
40
30
20
10
0
Less than 5,000 tons/year
5,000 to 9,999 tons/year
10,000 to 24,999 tons/year
25,000 to 49,999 tons/year
50,000 to 99,999 tons/year
More than 100,000 tons/year
Source: BioCycle

SCALE? TYPE?

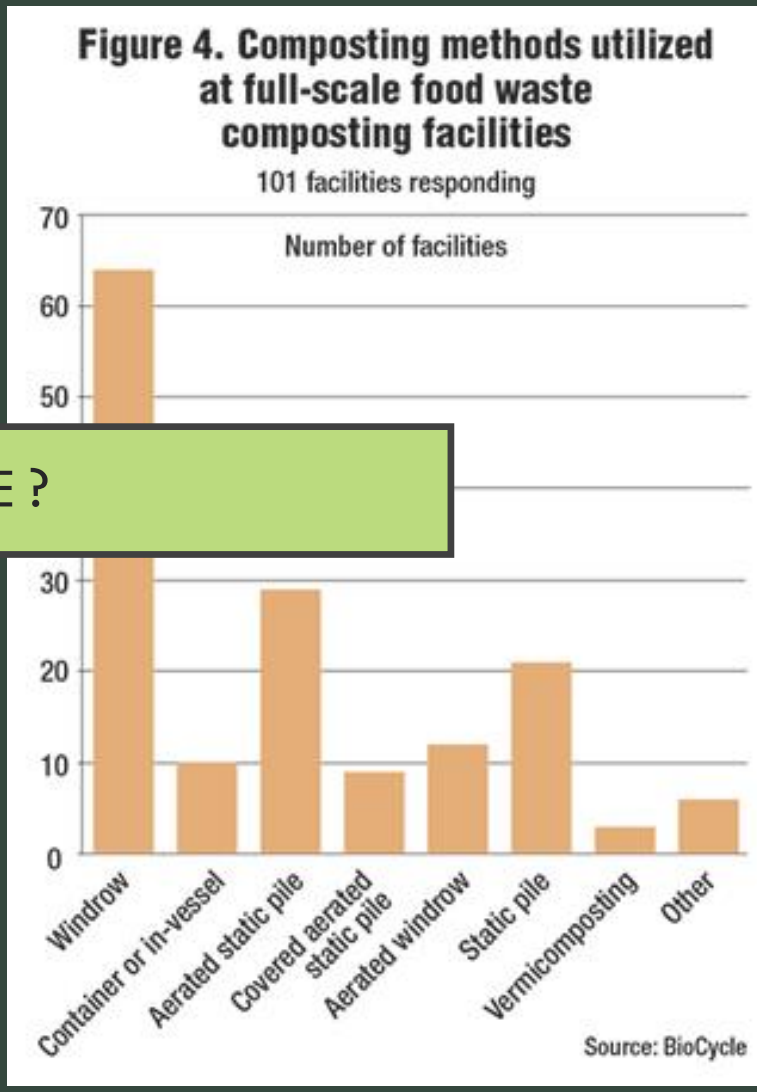


Figure 4. Composting methods utilized at full-scale food waste composting facilities
101 facilities responding
Number of facilities
70
60
50
30
20
10
0
Windrow
Container or in-vessel
Aerated static pile
Covered aerated static pile
Aerated windrow
Static pile
Vermicomposting
Other
Source: BioCycle


P3 ORGANIC EXCHANGE
p3organix.com

NJ: WHAT'S POSSIBLE?

PETITION TO ALLOW SMALL VOLUME FOOD WASTE MANAGEMENT AT COMMUNITY GARDENS:

- JULY 3, 2018
- STILL PENDING

PLANTING SEEDS *of* HOPE

Riker Danzig RIKER DANZIG SCHERER HYLAND PERRETTI LLP

https://www.nj.gov/dep/rules/petition.html

Re: Petition for Rulemaking Pursuant to N.J.S.A. 52:14B-4(f), N.J.A.C. 1:30-4.1, and N.J.A.C. 7:1D-1.1 to Amend N.J.A.C. 7:26A (Recycling Rules), Section 1.4 (Activities Exempt from General or Limited Approval) to include Composting Activities at a Community Garden

Dear Sir/Madam:

This firm represents Petitioner Planting Seeds of HOPE in connection with the below. Pursuant to N.J.S.A. 52:14B-4(f), N.J.A.C. 1:30-4.1, and N.J.A.C. 7:1D-1.1(a), Petitioner submits this Petition for Rulemaking to the New Jersey Department of Environmental Protection ("NJDEP") to add composting activities at a community garden to the list of activities exempt from the requirement to obtain a permit pursuant to N.J.A.C. 7:26A-1.4.

1. The Reasons for the Request

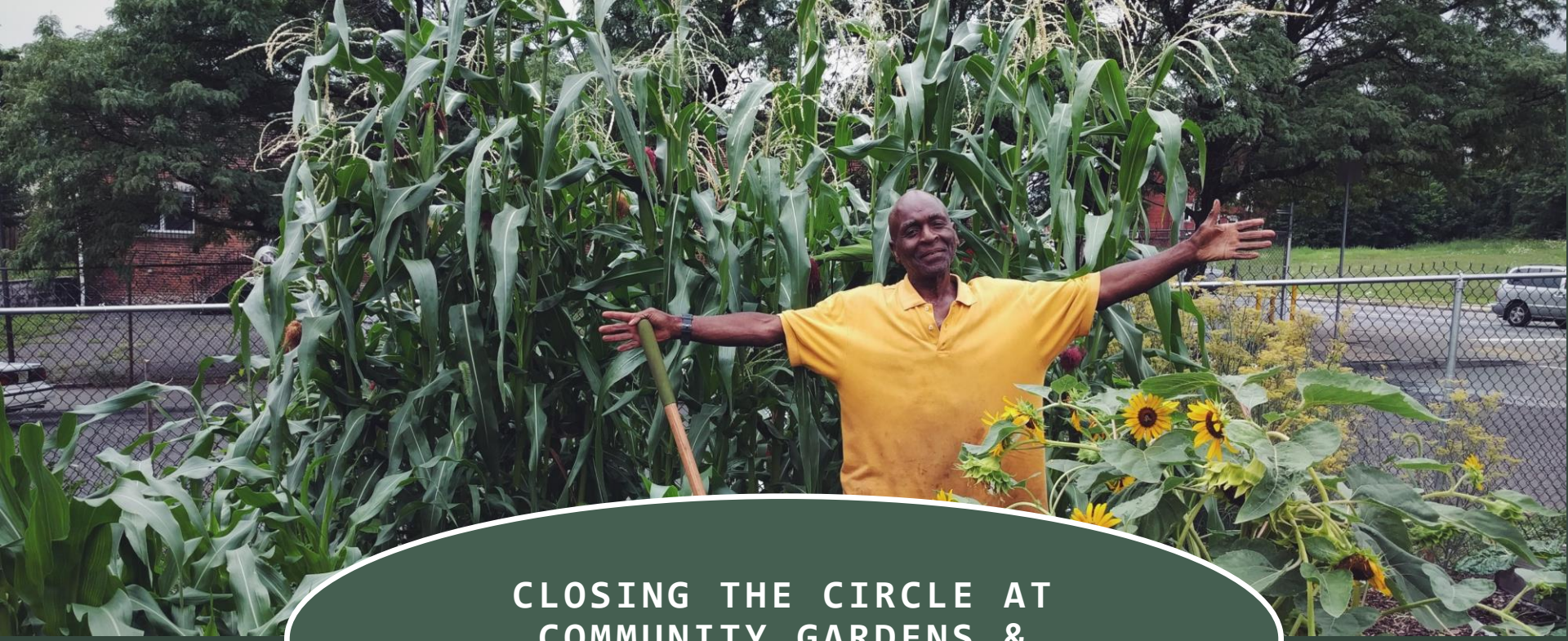
The *Manual on Composting Leaves and Management of Other Yard Trimmings* (the "Manual"), which the New Jersey Department of Environmental Protection published in 1994, recognizes the significant benefit provided by "backyard composting" (i.e., on-site composting of organic materials generated at a residence). The Manual also clearly states that New Jersey does not require a permit to conduct backyard composting.

However, many New Jersey residents, particularly, but not only, in low-income areas and communities of color are unable to take advantage of backyard composting because they lack a yard in which to do so. These residents often are served by a community garden where they can

LOCALIZED COMMUNITY COMPOST OS

MICRO – SMALL

SWAG Project Farm – Newark, NJ



CLOSING THE CIRCLE AT COMMUNITY GARDENS & URBAN FARMS

ACCESS → KNOWLEDGE → EMPOWERMENT

CALL TO ACTION

Discuss	Discuss these issues with your city government and your state legislators!
Ask	Ask them to publicly support an amendment to N.J.A.C. 7:26A-1.4 that allows composting activities at a community gardens.
Email	Email us with any questions or to be added to the list of organizations that support this petition.
Join	Join the New Jersey Composting Council to get the latest information on food waste management and composting in NJ.

BIN SYSTEMS!
METHODS OF MICRO FOOD WASTE MANAGEMENT

AERATED STATIC PILE!
METHODS OF MICRO FOOD WASTE MANAGEMENT

WINDROW!
METHODS OF MICRO FOOD WASTE MANAGEMENT

Resource	Link	Notes
Petition to allow composting at community gardens	Petition	Recycling rules; Amend N.J.A.C. 7:26A-1.4 to include composting activities at a community garden
NJ Composting Council	NJCC	Official state chapter of the US composting council, advocate, conferences, webinars
United States Composting Council	USCC	National Membership organization, professional development opportunities, conferences
New Jersey Administrative Code	NJAC	The rules in NJ: Title 7 envronmental protection, chapters 26,26a,27,27a
Composting for Community: Insitute for Local Self Relience	ILSR	Incredible free resources with some policy recommendations, great waste heirarchy
Community Scale Composting Systems, James McSweeney		Great technical overview, highly comprehensive. A must have!
BioCycle Magazine	BioCycle	Technical overview, studies, machines, industry standard, private sector thought leaders, most up to date studies, & you get a membership if you join the US Composting Council as a member
ReFed	ReFed	Data centric analysis promoting food waste reduction and processing
EPA: Composting Basics	EPA: CB	
EPA: Food Waste Opportunities Map	EPA: FWOM	Sourcing FW
How to: Small Scale ASP by Conscious Compost	CC: ASP	DIY Build of an aerated static pile system
USPIRG: Composting in America	USPIRG	Comprehensive study

RESOURCE LINK

RB.GY/FXPE8I

CONTACT

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CONTACT@URBANAGRICULTURECOOPERATIVE.ORG

PROGRAM UNDERWRITERS

New Jersey's cleanenergy program
njcleanenergy.com

The Geraldine R. DODGE FOUNDATION
IMAGINE A BETTER NEW JERSEY

SUMMIT SPONSORS

New Jersey Natural Gas

njea NEW JERSEY EDUCATION ASSOCIATION

Ørsted

SOUTH JERSEY GAS

PSEG

investorsBank

NEW JERSEY AMERICAN WATER

NJ AGG NEW JERSEY AGGREGATION

ELIZABETHTOWN GAS

Atlantic Health System

SUSTAINABLE JERSEY CERTIFIED

Final Week of Virtual Sustainability Summit

List of VSS events & to register - **bit.ly/NJVirtualSustSummit**

Recordings of VSS events – **www.sustainablejersey.com > Resources > Presentations > Sustainability Summit**

Questions?

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Virginia Lamb
vlamb@groundworkec.com

Jamie Bruno
contact@urbanagriculturecooperative.org