Florida Department of Environmental Protection

Waste Reduction & Recycling

Organics in Florida: Part II

“Strategies and Directions"

May 25, 2016





Housekeeping

50% by 2015
60% by 2017
70% by 2018
75% by 2020

- All attendees are in “listen-only” mode
- Please use the “Questions” tab to submit a question
- Questions will be answered at the end of the presentation
- The presentation and other material are available in the “Handouts” tab
- This session is being recorded and will be available on the DEP website for sharing
- Please complete the survey after the webinar

Agenda

50% by 2015
60% by 2017
70% by 2018
75% by 2020

- Kim Brunson
  - Publix Super Markets
- Nora Goldstein
  - BioCycle
- Jorge Montezuma
  - NC DENR
- Lauren O'Connor
  - FL DEP
- Robin Safley
  - FL Assoc. of Food Banks
- Brenda Platt
  - Institute for Local Self-Reliance
- Hunt Briggs
  - Resource Recycling Systems

Florida Department of Environmental Protection

Waste Reduction/Recycling

Nora Goldstein

Editor
BioCycle Magazine

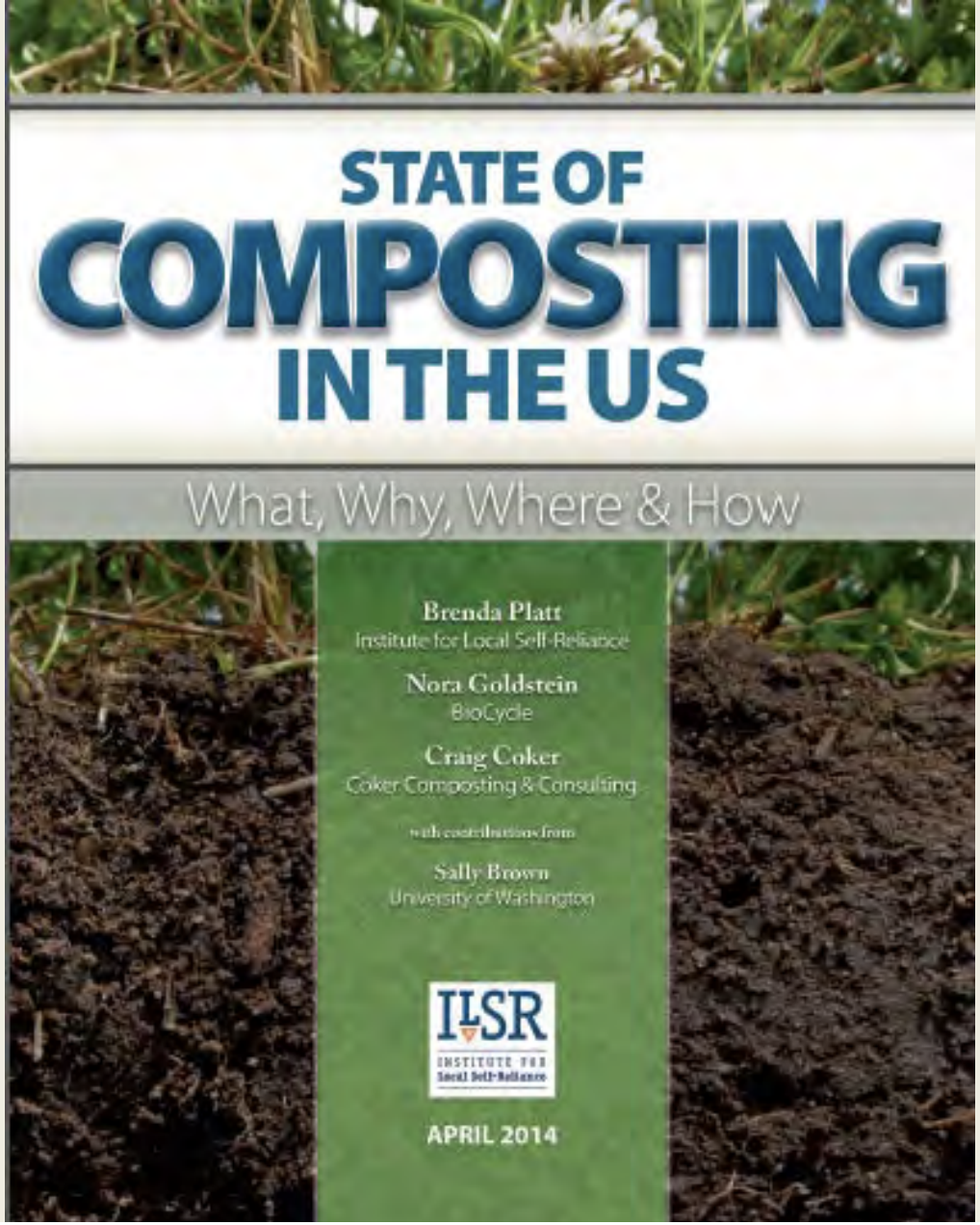




Organics Management Trends

Nora Goldstein, BioCycle

- Current Infrastructure
- Policies
- Manufacturing and Markets
- Drivers
  - Wasted Food Prevention, Rescue, Recycling
  - Integrated Solutions In Age of Resource Scarcity
  - Reducing Methane Emissions, Sequestering Carbon



http://www.ilsr.org/state-of-composting/

BioCycle.net
BIOCYCLE
THE ORGANICS RECYCLING AUTHORITY

State of Composting Snapshots (44 states reporting this data)

- Yard trimmings — 3,453
- Food waste — 347**
- Mixed organics — 87
- Biosolids — 238
- On-site composting at institutions: 337
- Composting on-site at farms: 400

**>500 (2014; BioCycle's www.findacomposter.com)

Total Tons of Organics Diverted (33 of 44 responding states; 2012 data)

- Total of 19.4 million tons
- Ranking by states reporting:
  - California: 5.9 million tons
  - Florida: 1.5 million tons
  - Iowa: 1.3 million tons
  - Washington State: 1.2 million tons
  - New York: 1.0 million tons

Composting Facility Breakdown By Size (31 states reporting; 2012 data)

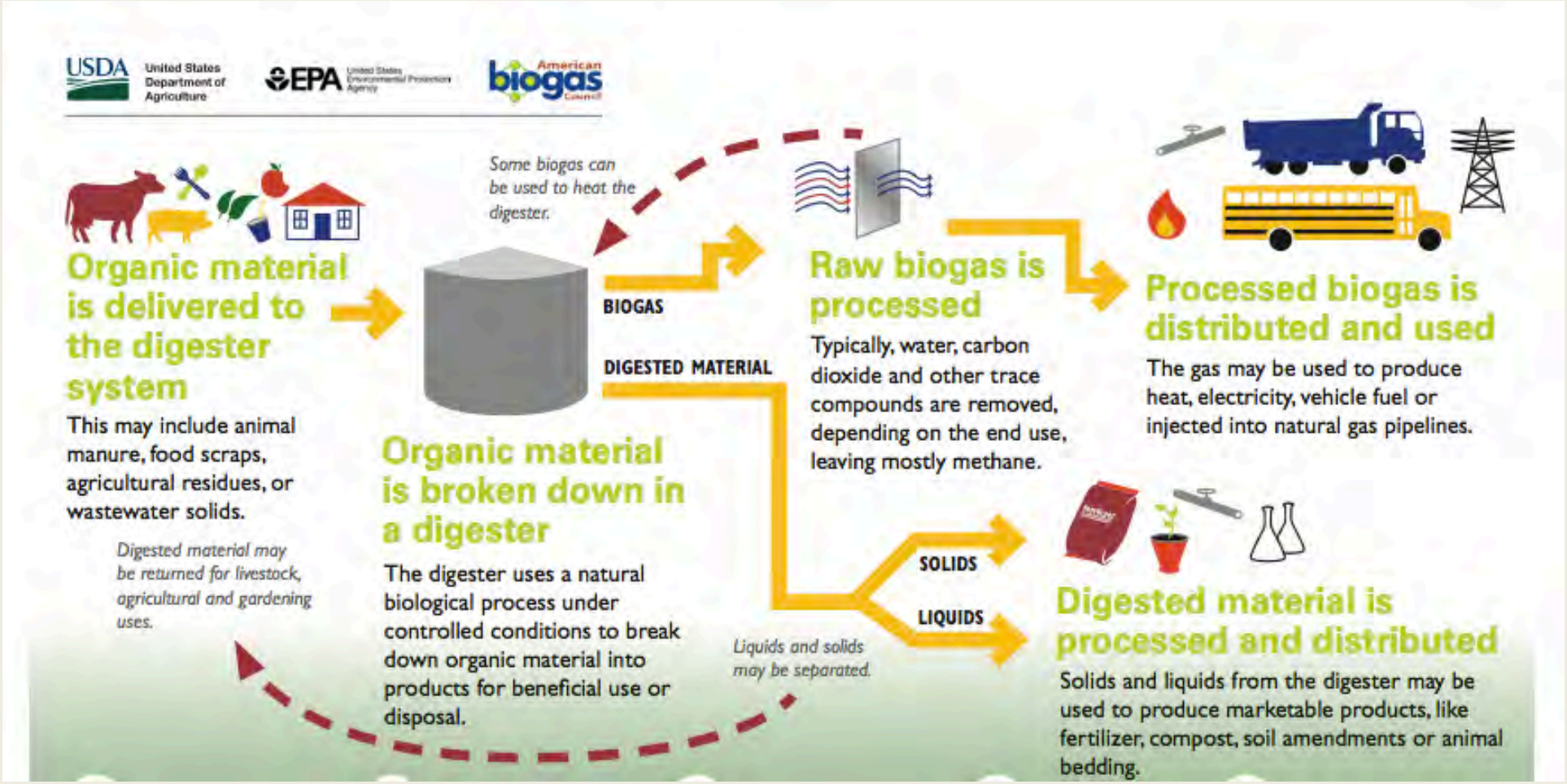
Total Facilities Reporting: 3,285

- Less than 5,000 tons/year — 2,354 (72%)
- 5,000 to 20,000 tons/year — 713 (22%)
- Over 20,000 tons/year — 218 (6%)

Heavy populated states such as California, Florida, Massachusetts, New Jersey, New York, Ohio, Virginia and Washington included in states responding

What Is Anaerobic Digestion?

www.americanbiogascouncil.org



Source: American Biogas Council

Anaerobic Digestion Systems

- Wet Systems
  - Low Solids
  - High Solids
- Dry Systems
- Easiest way to distinguish?
  - Pumpable = Wet
  - Move with a loader = Dry

Categories of SSO AD Projects in U.S.

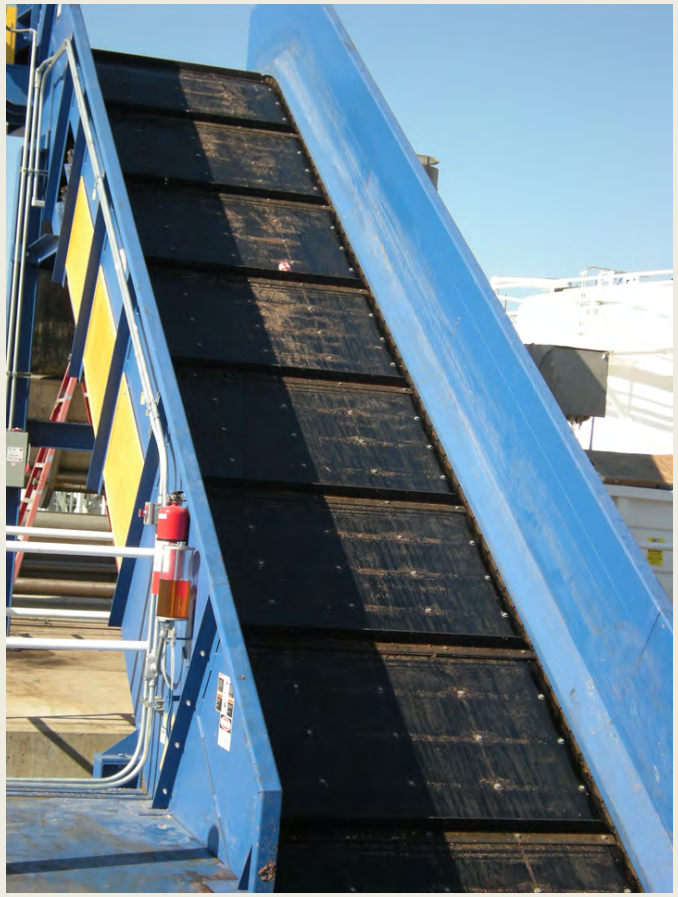
- Wet and dry digesters processing source separated organics, primarily food waste streams
  - Some solely commercial
  - Some public/private partnerships
- Farm digesters receiving deliveries of off-farm substrates, including commercial SSO
- Captive
- Codigestion at municipal wastewater treatment plants

Monterey Regional Waste Management District, Marina, CA

Integrating AD and Composting

Sensenig Farm, Kirkwood, Pennsylvania

CleanWorld, Sacramento, CA



Energy Net Positive, Gresham, Oregon WWTP

The BioCycle Portals

Composting

BioCycle FindAComposter.com®

New & Improved

Anaerobic Digestion

BioCycle FindADigester.com®

Introducing

Organics Collection Services

BioCycle FindOrganicsHauler.com®

Introducing

SPONSORED BY

BioCycle THE ORGANICS RECYCLING AUTHORITY BioCycle.net

BPI FOUNDING SPONSOR

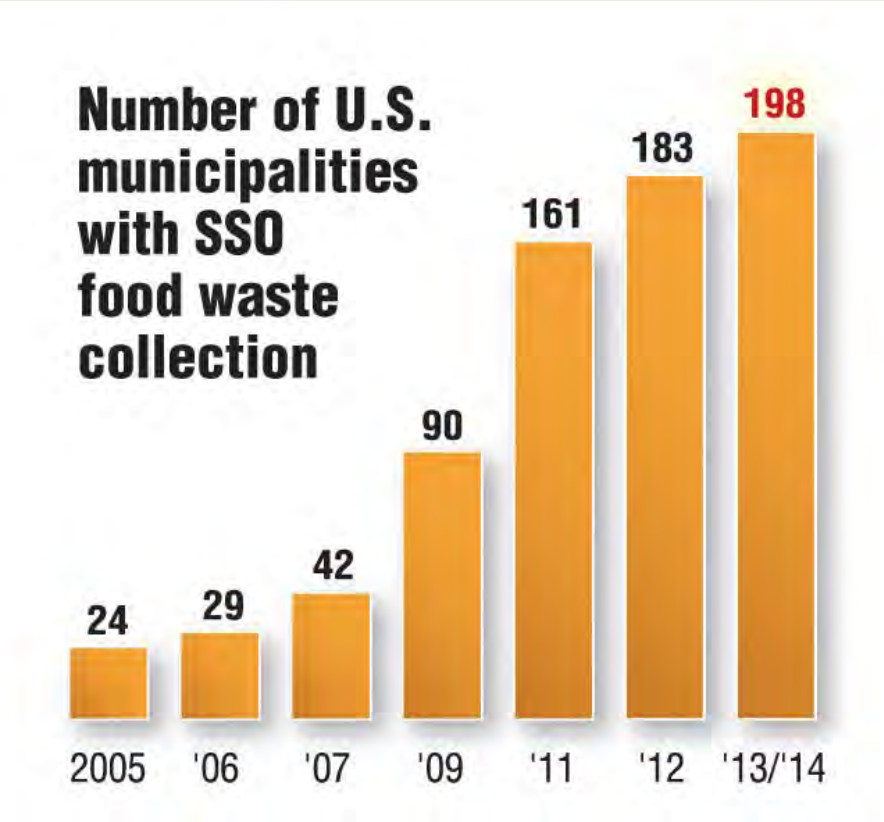
FPI FOODSERVICE PACKAGIN INSTITUTE

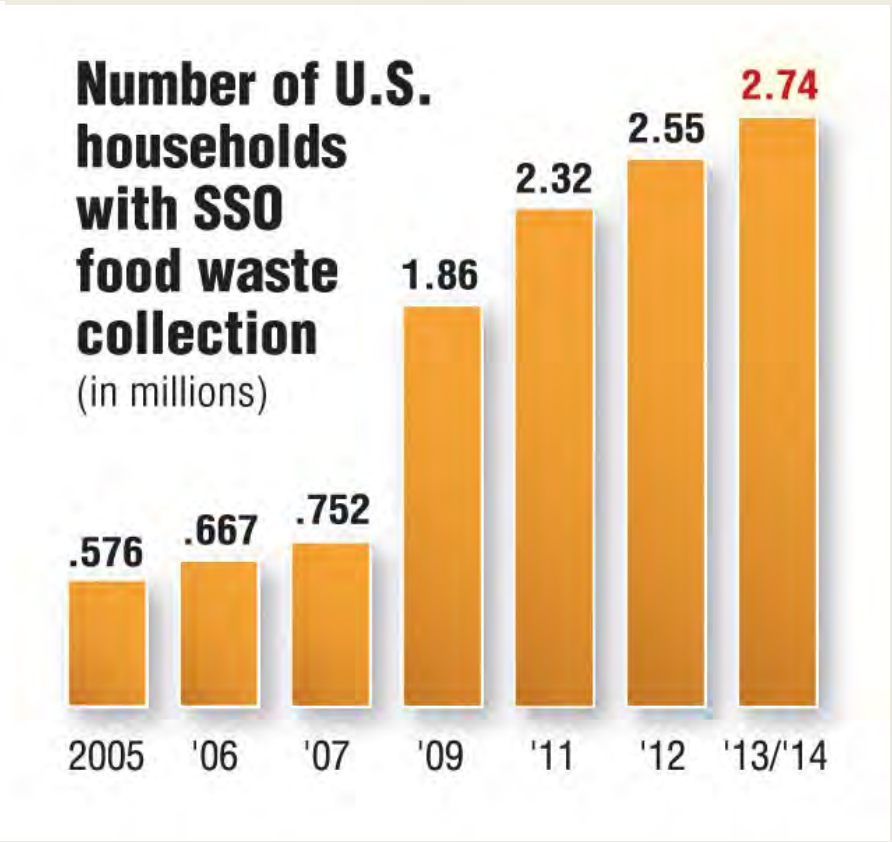
CLOSED LOOP foundation

ILSR INSTITUTE FOR Local Self-Reliance

Conseil canadien du COMPOST Council of Canada

CYCLE RECYCLING AUTHORITY





Growth Trends:

- About 10% growth in number of municipalities and households

Prediction for 2015

- Slow but steady growth, with several major communities expanding programs (e.g., Minneapolis, New York City)

Source: BioCycle, 2015

Figure 1. Community composting sites in New York City supported or funded by the NYC Compost Project

Graphic courtesy of the DSNY Bureau of Waste Prevention, Reuse and Recycling

*Map shows community compost site locations in 2012. The number of sites increased to 221 in 2013.

Subscription Services

Compost Pedallers

Carter's Compost

Policies — Organics Disposal Bans & Mandates

- No proximity but quantity provision — Massachusetts
- Bans with proximity and quantity generated provisions — Connecticut, Rhode Island
- Phased in ban leading to no organics in landfill — Vermont
- Mandates — California
- Quantity of organics allowed in trash — Metro Vancouver
- Increase in wasted food prevention and rescue — Vermont

Where Are We Heading With Organics Management?

Composting as disposal alternative or ……..

Source: DNREC File photo

….. or Compost Manufacturing

Raw Materials for Composting

Disposal Alternative

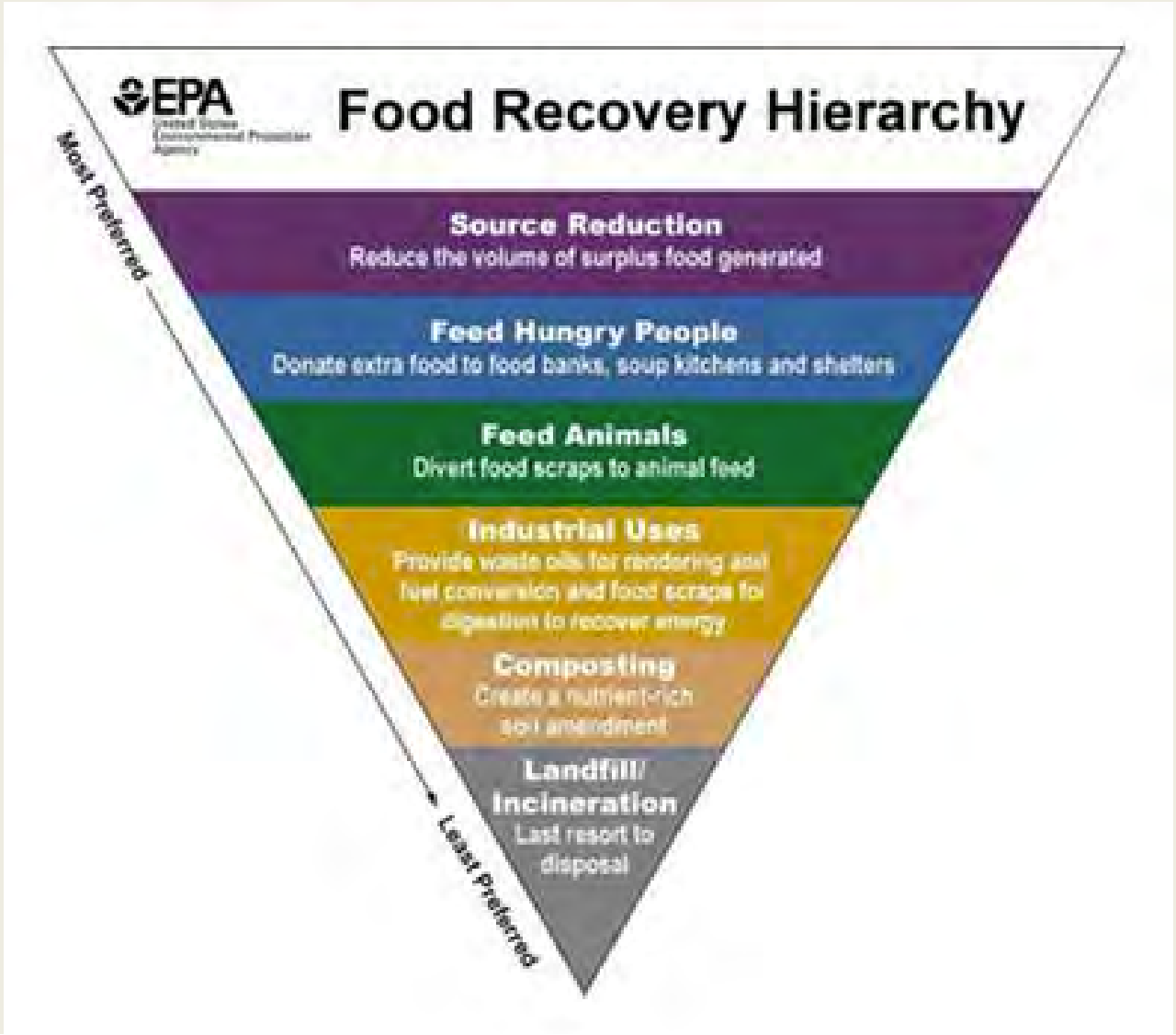
Compost Manufacturing

Compost Manufacturing

What Scale? What Cost?

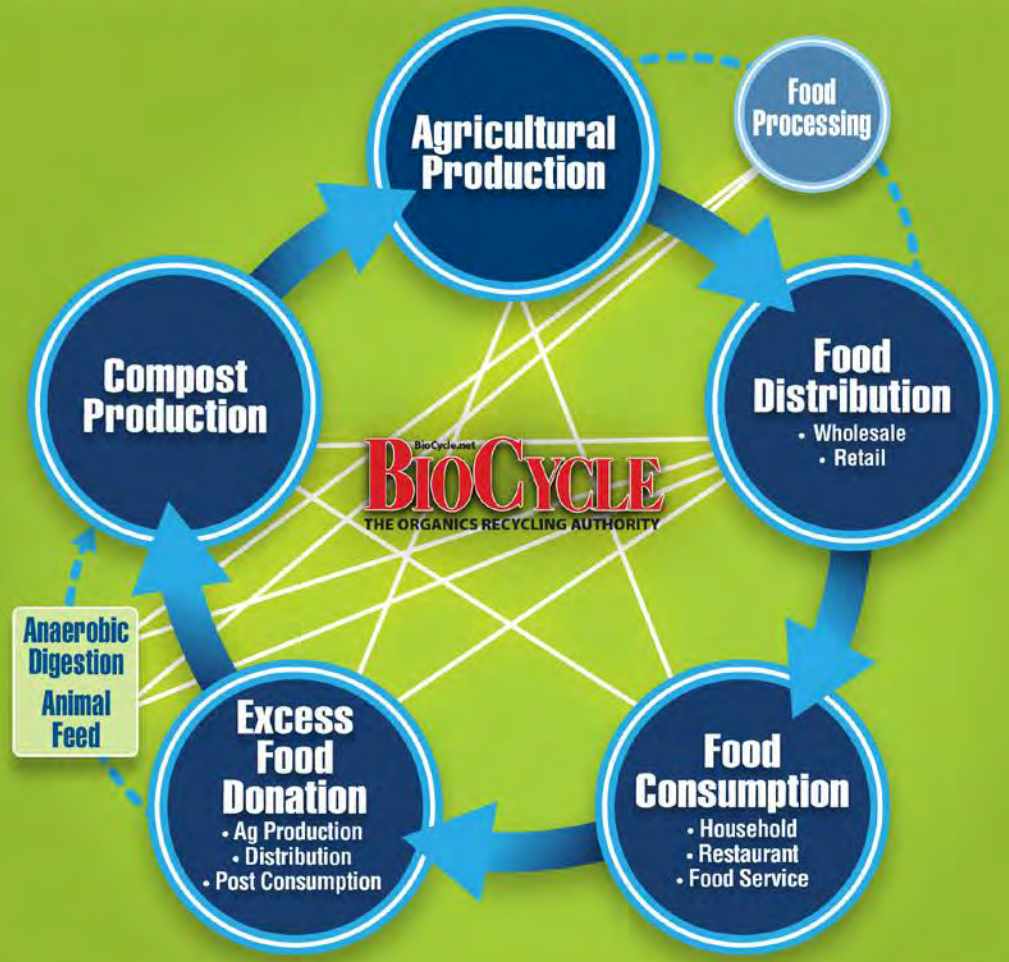
Compost Into …….

Food Systems



Food System Life Cycle

Food For People, Food For Soil



Graphic concept source: "Examining the Feasibility of Increasing Compost Use on Food Crops," ENVIRON International Corp., Clackamas, OR; March 2014

INTEGRATED SOLUTIONS

Montgomery County, MD RainScapes Rewards Rebate Program

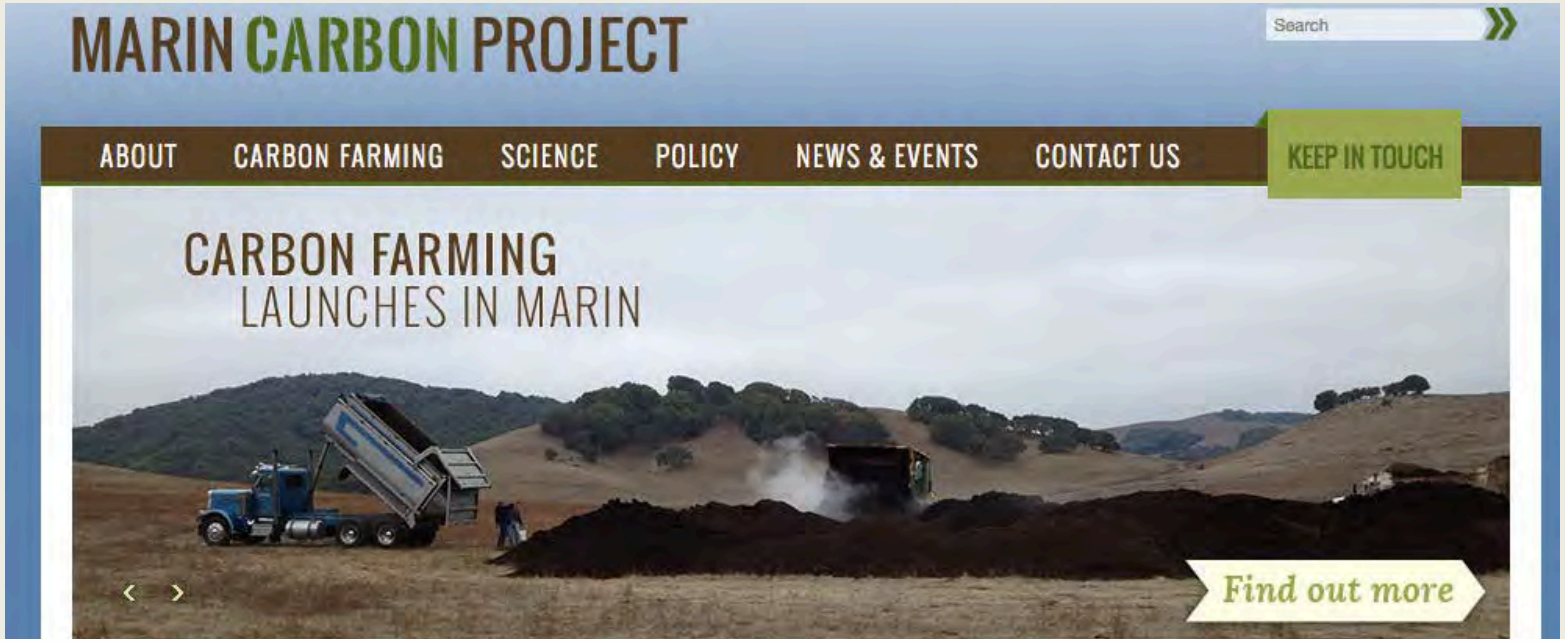
- BMP for rain gardens: amending soil with compost
- Conservation landscapes: required to have 3-inch layer of compost (incorporated to create a 6-12 inch improved soil layer)
- Property owners offered rebate for low-impact development installations
- US$2,500 max for residential
- US$10,000 max for commercial, multi-family, or institutional
- Replicated in Gaithersburg & Rockville (MD)
  Over 100 Certified RainScapes Professionals


RainScapes
Environmentally-Friendly Landscapes for Healthy Watersheds
Rain Gardens
Why should I install a rain garden?
What is a rain garden?

Source: Brenda Platt, Institute for Local Self-Reliance

Climate Change

- **Methane as Short-Lived Climate Pollutant = basis for GHG reduction funding in California**
- **Compost application to sequester carbon**
  - **http://www.marincarbonproject.org/**



Nora Goldstein, Editor
BioCycle
biocycle.net
noragold@jgpress.com

Florida Department of Environmental Protection

Waste Reduction/Recycling

Jorge Montezuma

North Carolina
Dept. of Environment and Natural Resources

Organics Recycling in North Carolina

Jorge Montezuma, EIT

Organics Recycling Specialist

Recycling and Materials Management Section

Division of Environmental Assistance & Customer Service

NC Department of Environmental Quality

FL DEP Organics Webinar

May 25, 2016

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OUTLINE

NC Recycling Program

NC Organics Recycling Study

2015 Food Recovered

Next Steps

NC DEQ's Division of Environmental Assistance & Customer Service
Recycling and Materials Management Section

"NC Recycling Program"

Technical Assistance

- Troubleshoot Operations
- Navigate Permitting
- Research Markets
- Search Feedstocks
- Create Clusters
- Liason
- Trainings (US/NC Composting Council)

Organics Grants

- Public & Private
- Bonus: Food Diversion
- 111 project awards
- $1.9 million since 1990
- 17 FTE jobs created
- $12 awarded/ton diverted/reporting year

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Navigating Food Diversion in NC

- DWM Solid Waste Section
- DWR Animal Feeding Operations
- Division of Environmental Assistance & Customer Service
- State Vet's Office
- DWR Non-Discharge Permitting Unit
- DWR Stormwater Permitting

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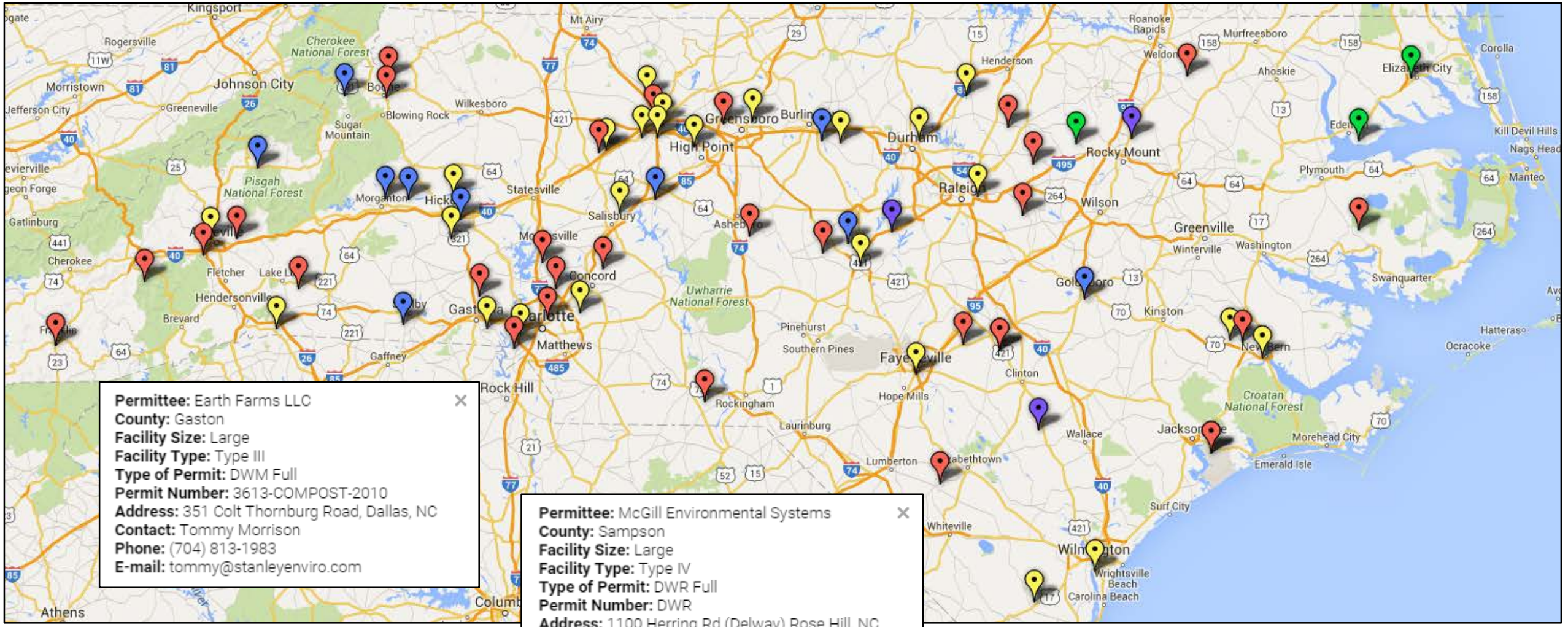
PERMITTED COMPOSTING FACILITIES



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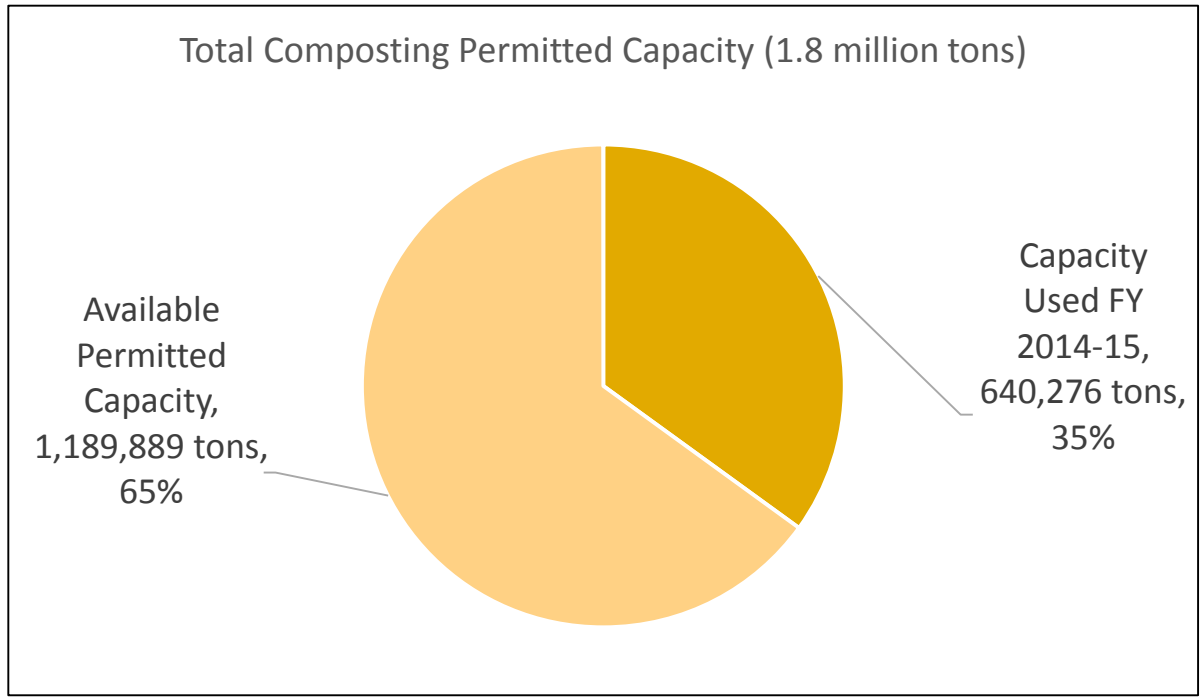
NC ORGANICS RECYCLING STUDY:
MATERIALS MANAGED 2011-2015 & FOOD RECOVERED 2015

North Carolina Department of Environmental Quality
Division of Environmental Assistance and Customer Service
Recycling and Materials Management Section

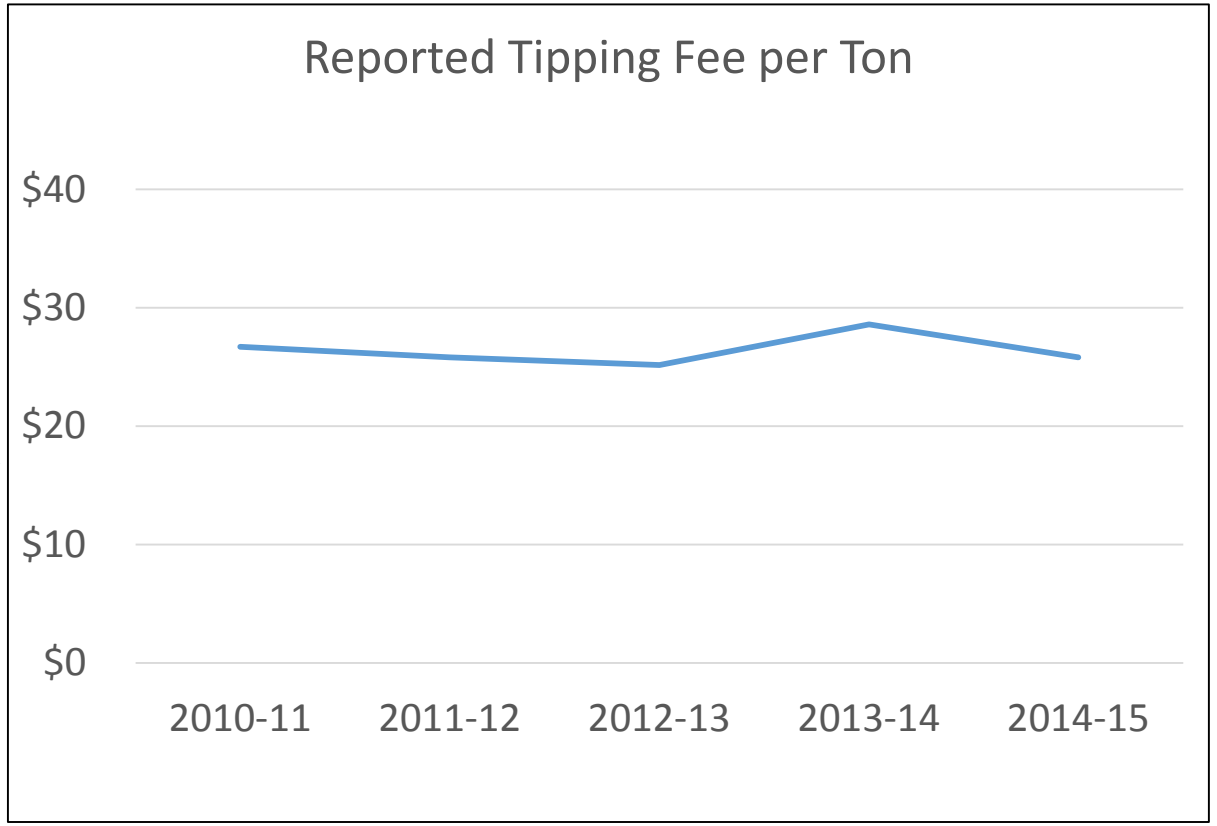
APRIL 2016

Environmental Assistance and Customer Service
ENVIRONMENTAL QUALITY

GENERAL
INPUTS
OUTPUTS
FOOD RECOVERED



9 private
11 public sites



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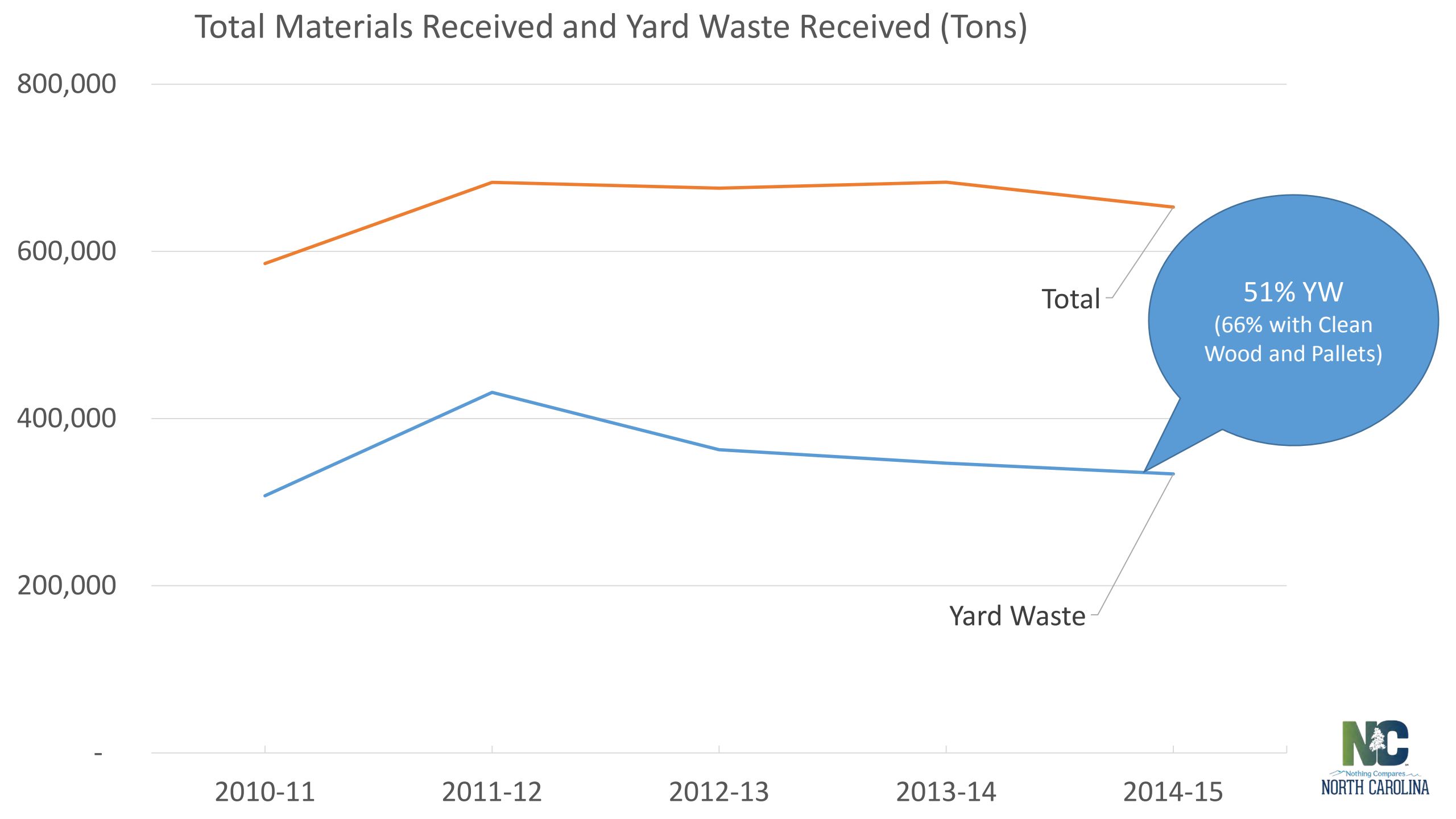
Total Materials Received and Yard Waste Received (Tons)
800,000
600,000
400,000
200,000
-
2010-11
2011-12
2012-13
2013-14
2014-15
Total
Yard Waste
51% YW
(66% with Clean Wood and Pallets)
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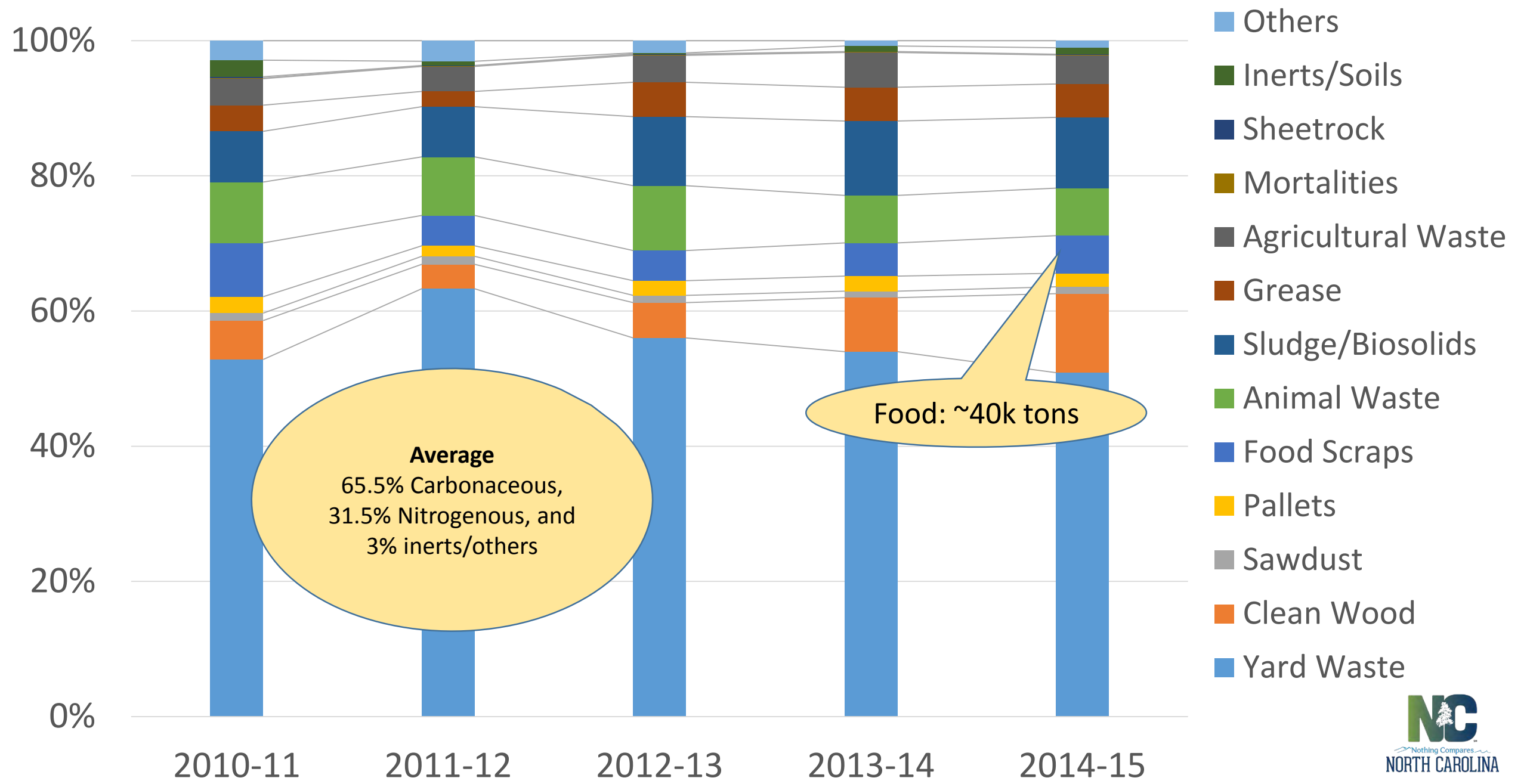
The Composting "Evolving Ton"



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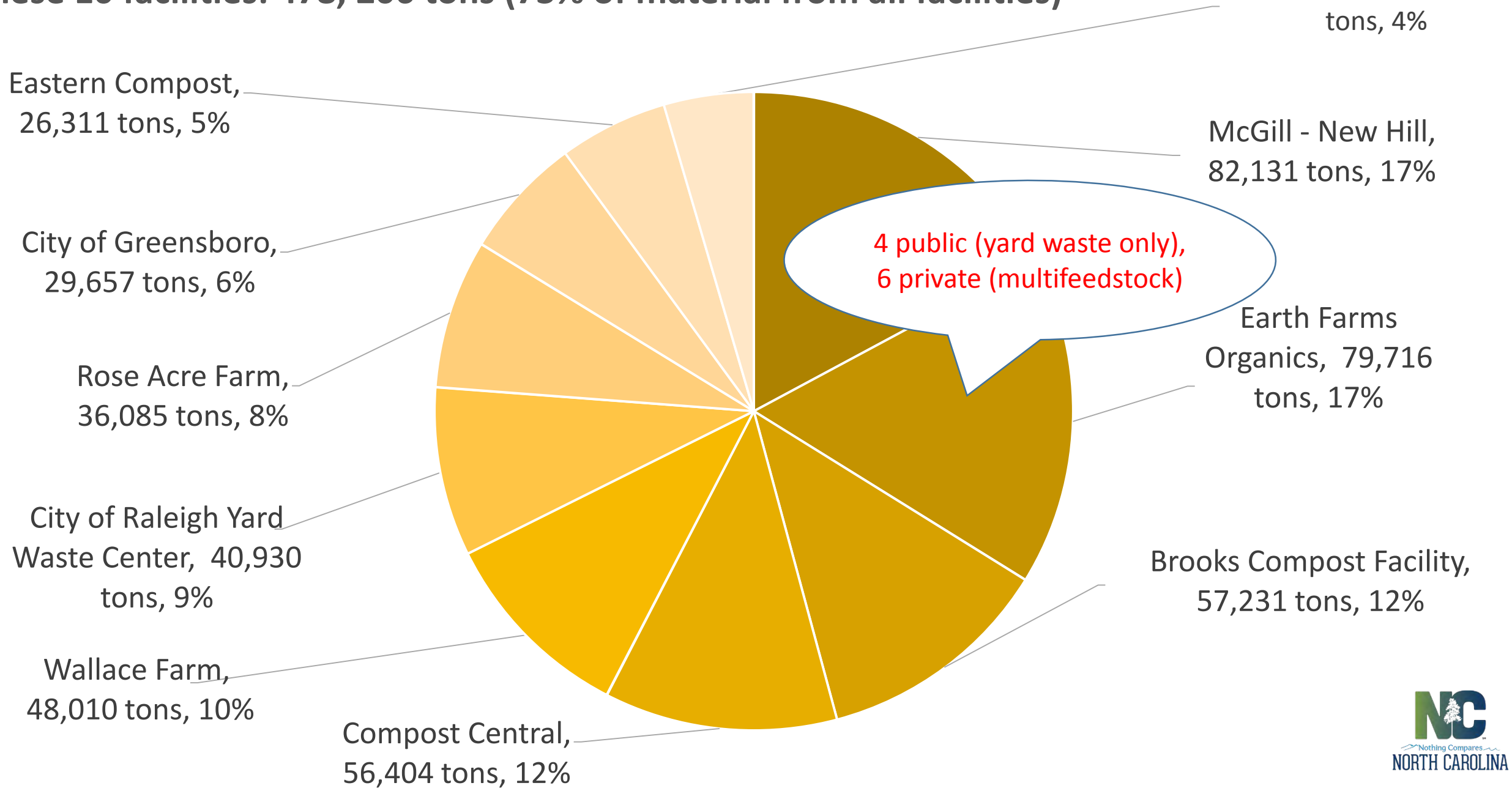
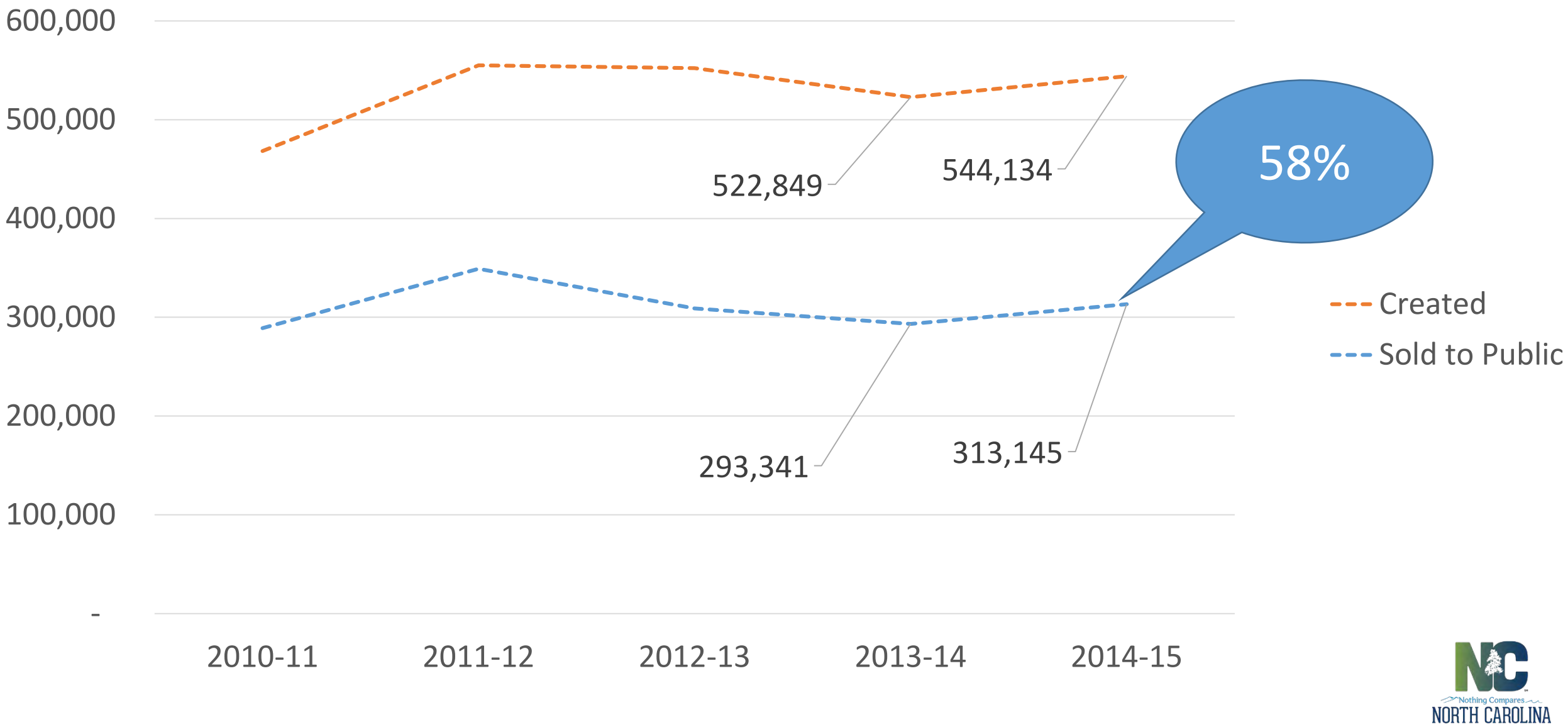
Most Tons Received in fiscal 2014-15: Percentage based on tons accepted by these 10 facilities: 478, 206 tons (73% of material from all facilities)



Total Material Created & Sold to the Public (Tons)



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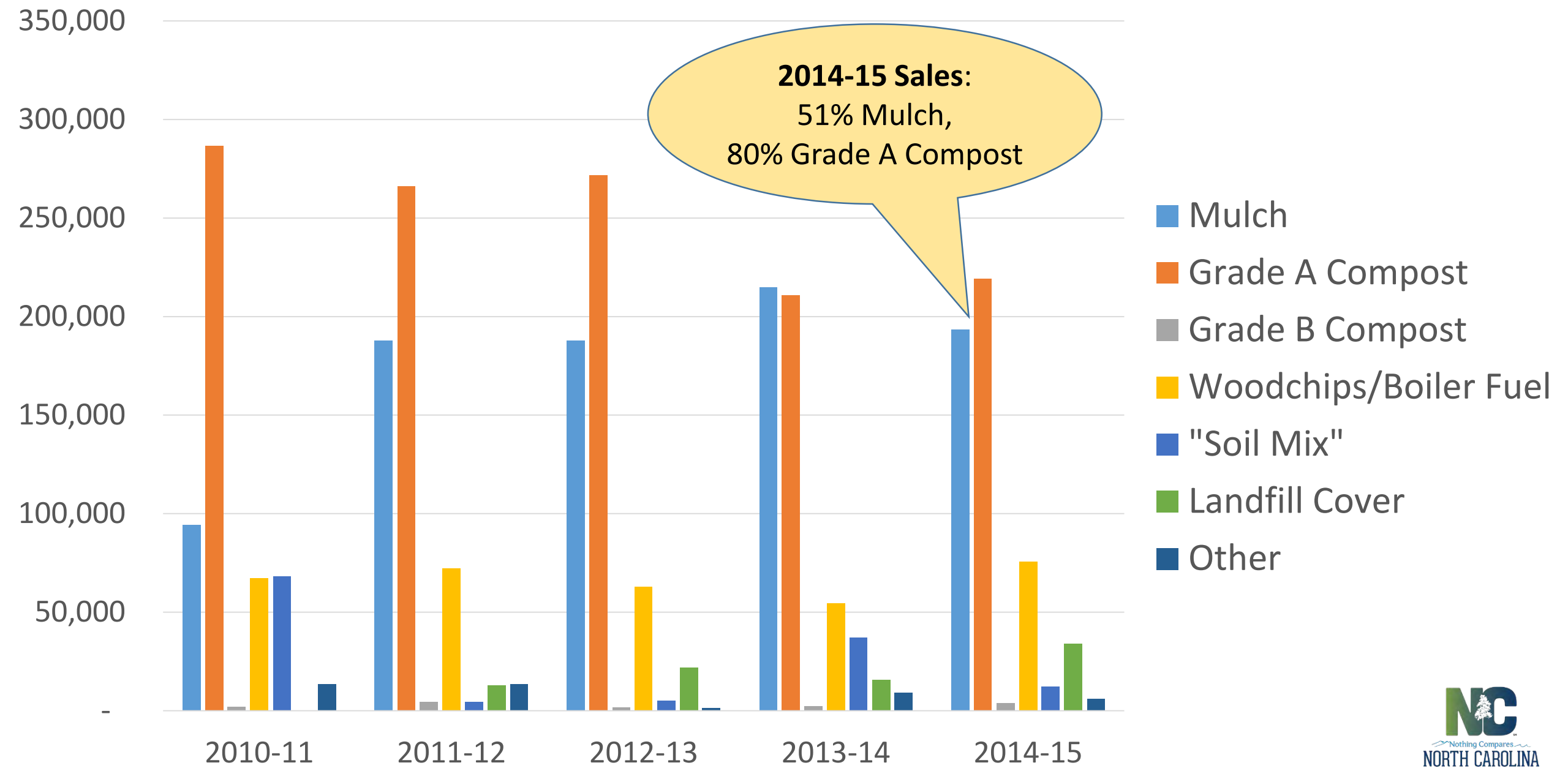
Products Created (tons)



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Organics Recycling Conclusions

Healthy composting infrastructure

- Available capacity
- Stable and competitive tipping fees
- Compost demand
- 3.7 jobs/10,000 tons composted*
- Rules update coming soon
- Missing data (landfill/compost ops, community composting, backyard composting, etc)

Next: food recovered

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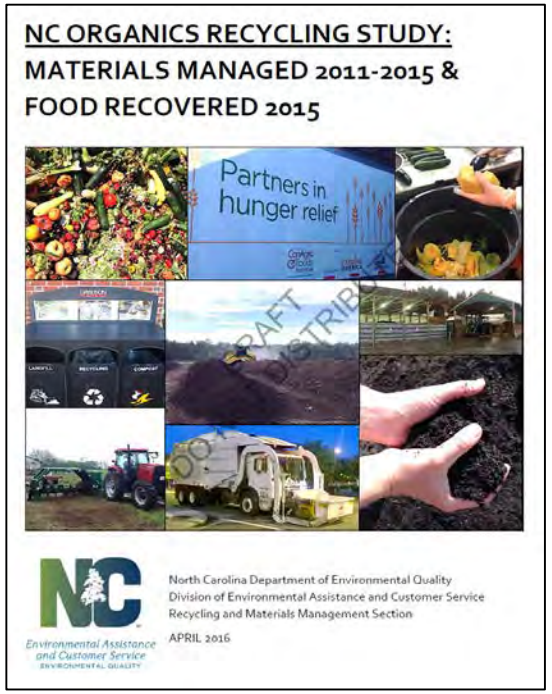

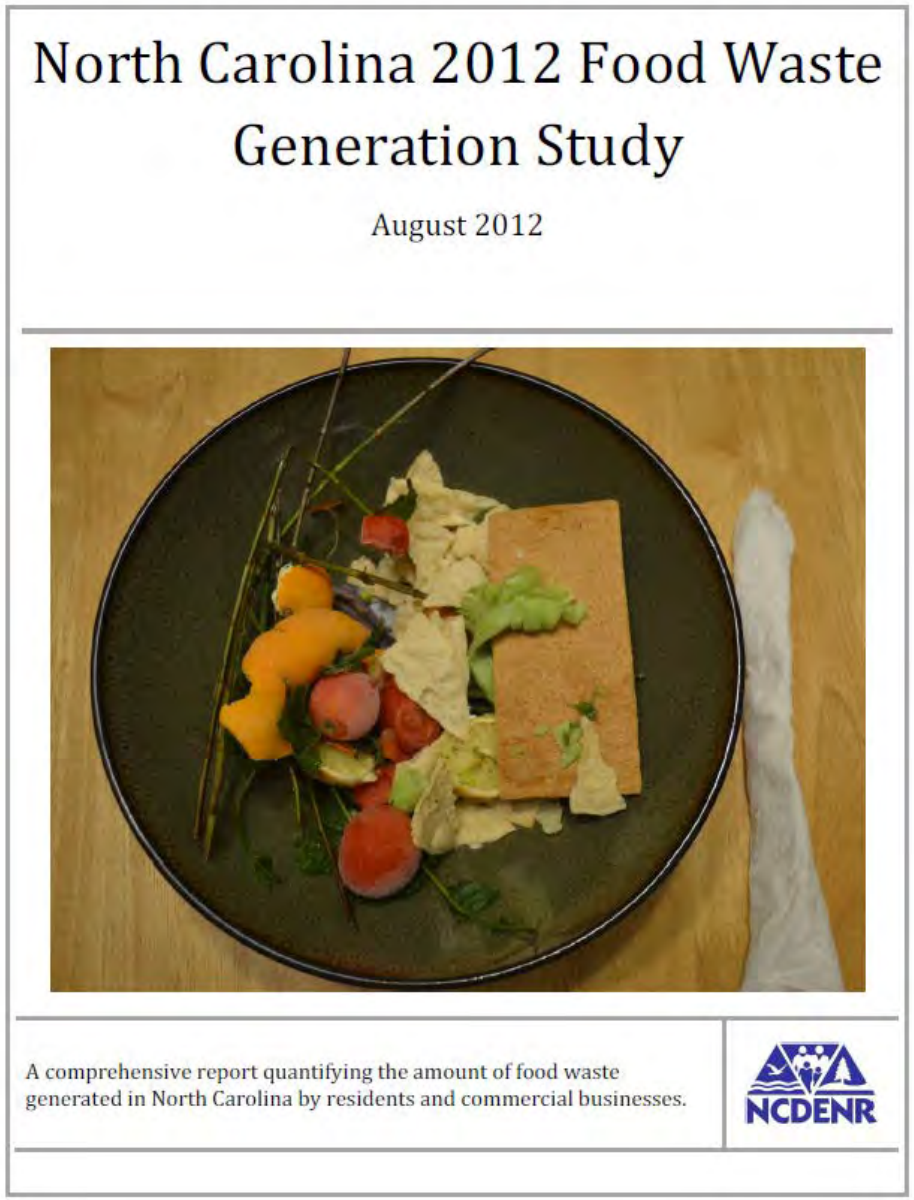

1.1 MILLION tons (residential & commercial generation)

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APPALACHIAN STATE UNIVERSITY

BELMONT ABBEY COLLEGE

DUKE UNIVERSITY

HIGH POINT UNIVERSITY

NORTH CAROLINA STATE UNIVERSITY

PFEIFFER UNIVERSITY

SALEM COLLEGE

UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

UNIVERSITY OF NORTH CAROLINA AT PEMBROKE

FOOD SCRAPS COLLECTION

at community colleges, colleges, universities

14 public & 7 private

Sports venues

Special events

Pre/Post-Consumer

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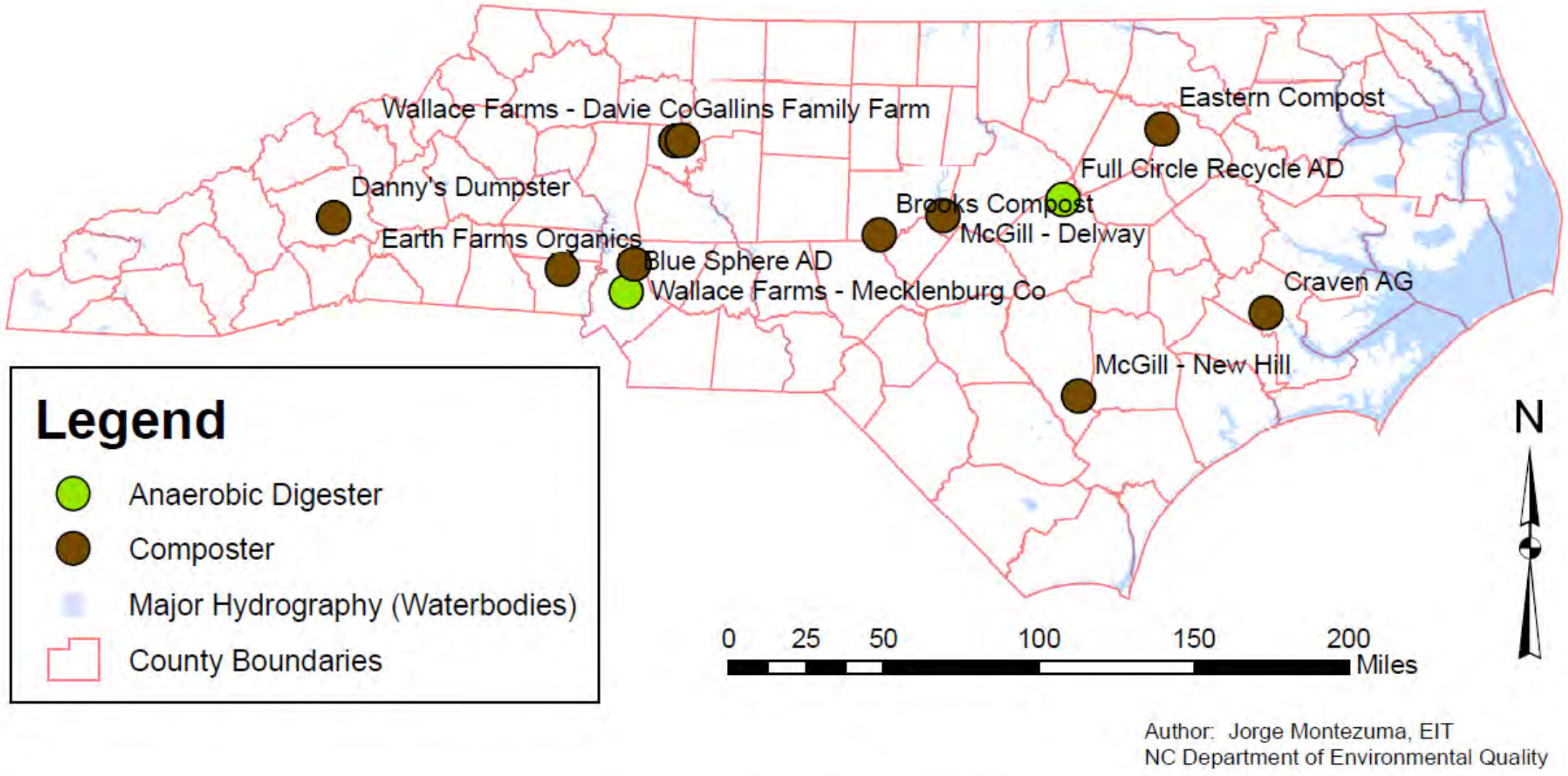
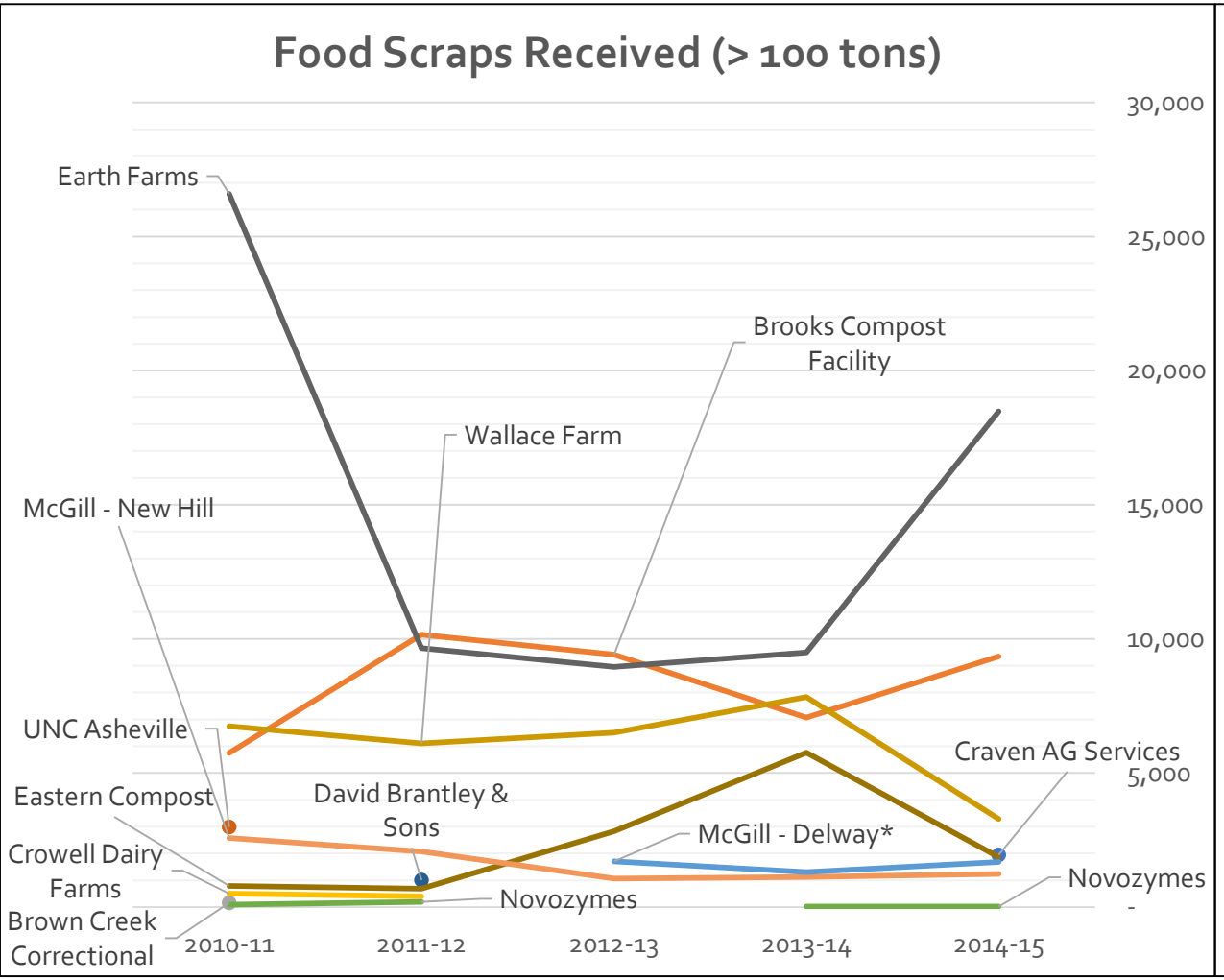
Permitted AD/Composting Facilities

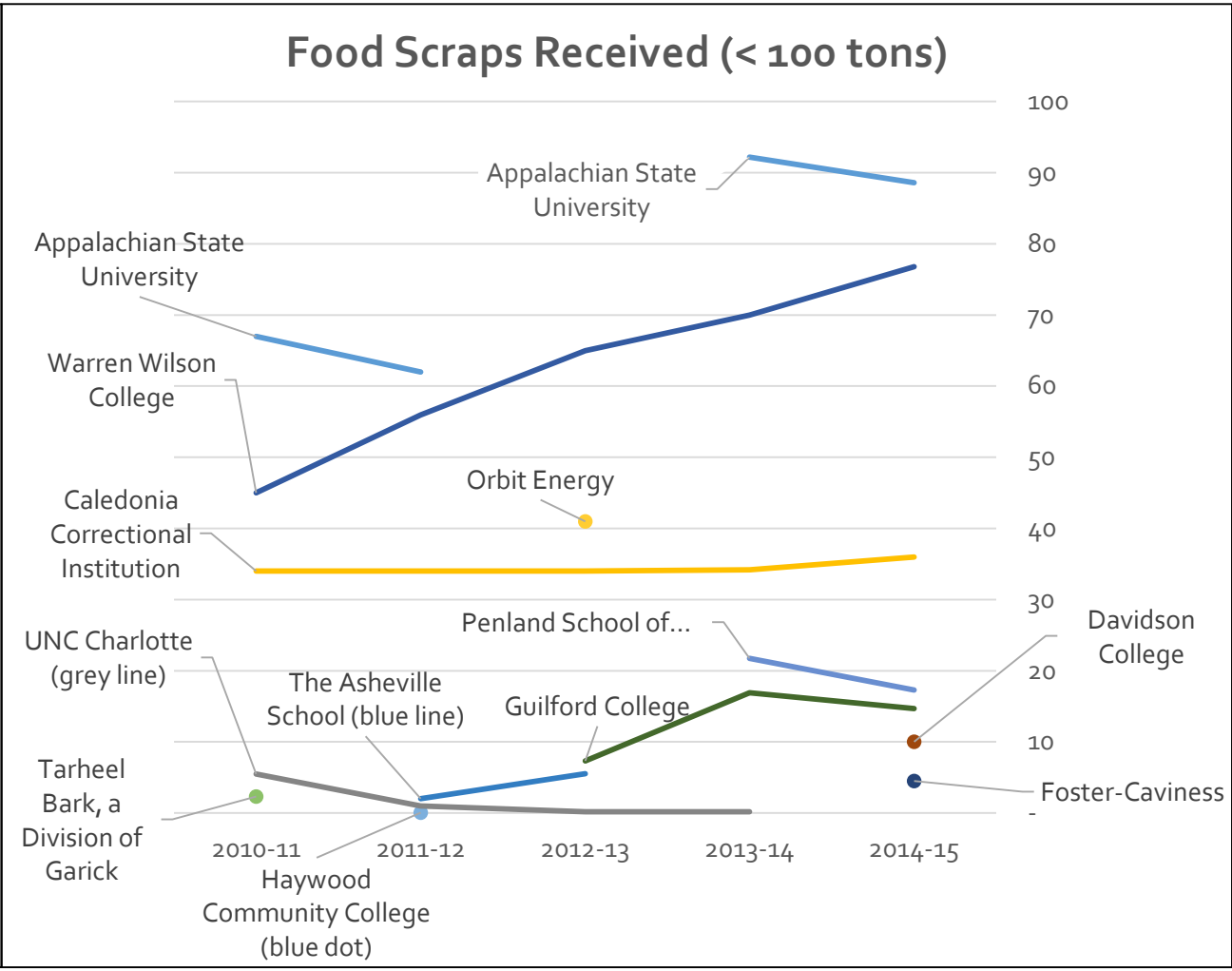
Able to Accept Off-Site Food Scraps



Author: Jorge Montezuma, EIT
NC Department of Environmental Quality

Food Composting





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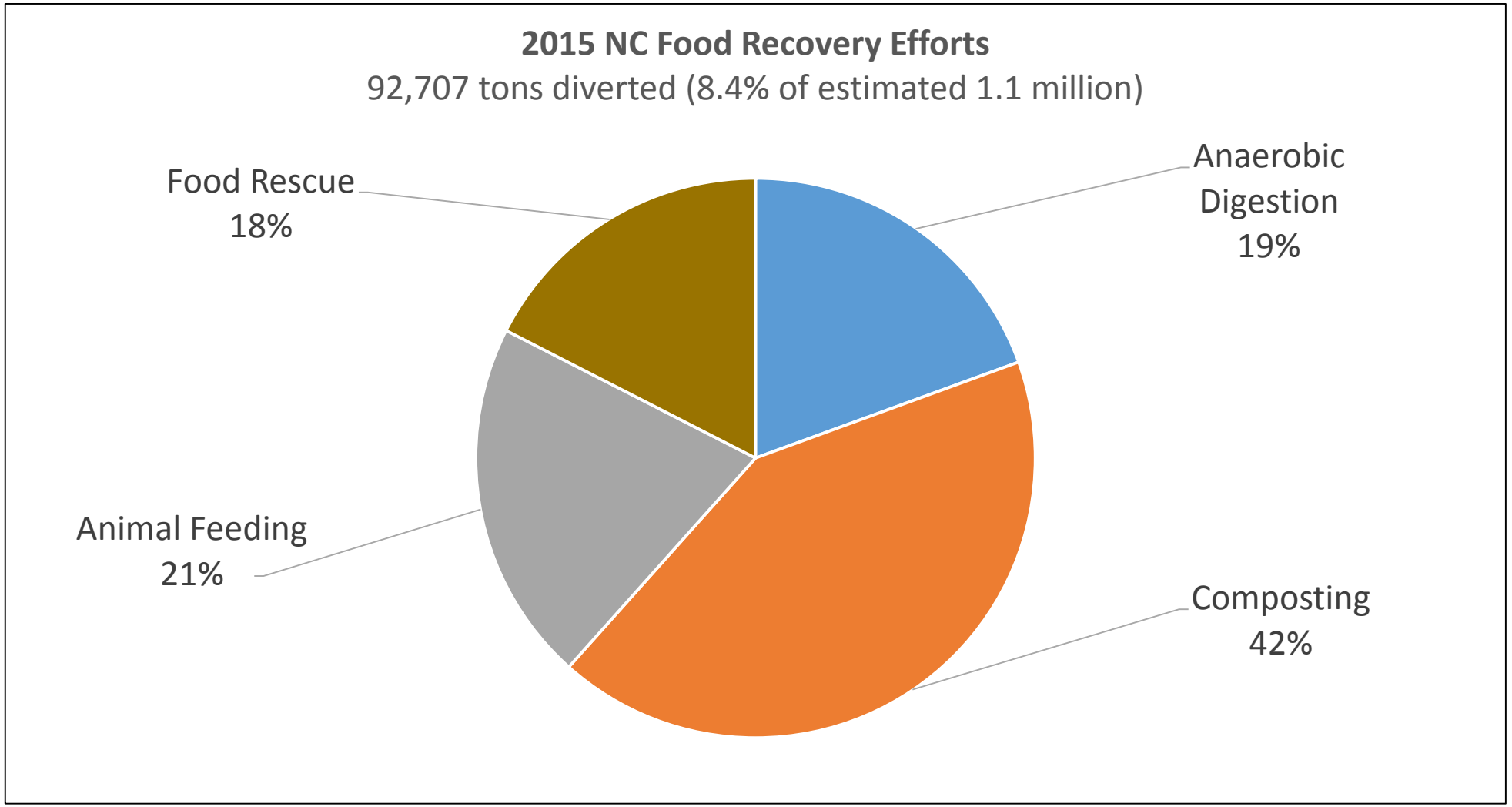

2015 NC Food Recovery Efforts
92,707 tons diverted (8.4% of estimated 1.1 million)
Food Rescue
18%
Anaerobic
Digestion
19%
Animal Feeding
21%
Composting
42%

Strategy	Management Goals	Infrastructure Required to Meet Goal
Food Rescue	110,000 tons	Expansion of refrigerated vehicles, refrigerated storage, and pickup locations.
Animal Feeding	110,000 tons	Expansion of vehicles and pickup locations.
Anaerobic Digestion	110,000 tons	There is currently under construction a permitted food scraps-based anaerobic digester (Blue Sphere in Charlotte, Mecklenburg County) with enough design capacity (500 tons per day of food scraps) to meet the Anaerobic Digestion share of the 50% reduction goal. Also, the only anaerobic digester that is processing food scraps at this moment (Full Circle Recycling in Zebulon, Johnston County), has available capacity. To increase diversion through anaerobic digestion, food scraps collection vehicles as well as pickup locations within NC will be required to meet the goal.
Commercial Composting	220,000 tons	Figure 2 shows there are approximately 1.2 million tons of permitted composting capacity currently available at commercial composting facilities. This should be enough to accommodate 220,000 tons of food scraps in addition to the necessary carbonaceous material to effectively compost the food scraps. Even though the available permitted capacity to process organic materials exists, the major publicly operated commercial composting facilities would have to integrate food scraps into their operations and permits. Additionally, food scraps collection vehicles as well as pickup locations in NC will be required to meet the goal.

Food Recovery Conclusions

- Food rescue and animal feeding are established and have a significant impact
- Food-AD is coming
- Composters have capacity
- Need to create collection clusters

Next Steps

- Regional Food Recovery Summits (SC models)
- Food Collection Grants (public/private)

Thank you!

Jorge Montezuma, EIT
Organics Recycling Specialist, NCDEQ
Jorge.Montezuma@ncdenr.gov
919-707-8123

Florida Department of Environmental Protection

Waste Reduction/Recycling

Lauren O’Connor

Florida
Dept. of Environmental Protection





Program Overview

- The Florida Composting Program regulates the recycling of organic solid wastes.
- The program's primary focus is on production and use of compost made from solid waste and on source-separated organic processing facilities (SOPF).
- Program activities include rulemaking, providing technical assistance, providing information on environmental aspects of compost production and use, and registering/permitting source-separated organics processing facilities and composting facilities.

Program History

- Rulemaking Authority under 403.061, 403.704 and 403.7043, Florida Statutes (FS). Law Implemented under 403.7043, FS.
- Formerly 17-709.550, Florida Administrative Code (F.A.C.)
- Rule 62-709, F.A.C. implemented in November 1989, containing regulations for processing yard trash and for composting solid waste.
- Rule amended in February 2010 to include Registration of facilities composting vegetative (food) wastes, animal byproducts and manure/manure blending.

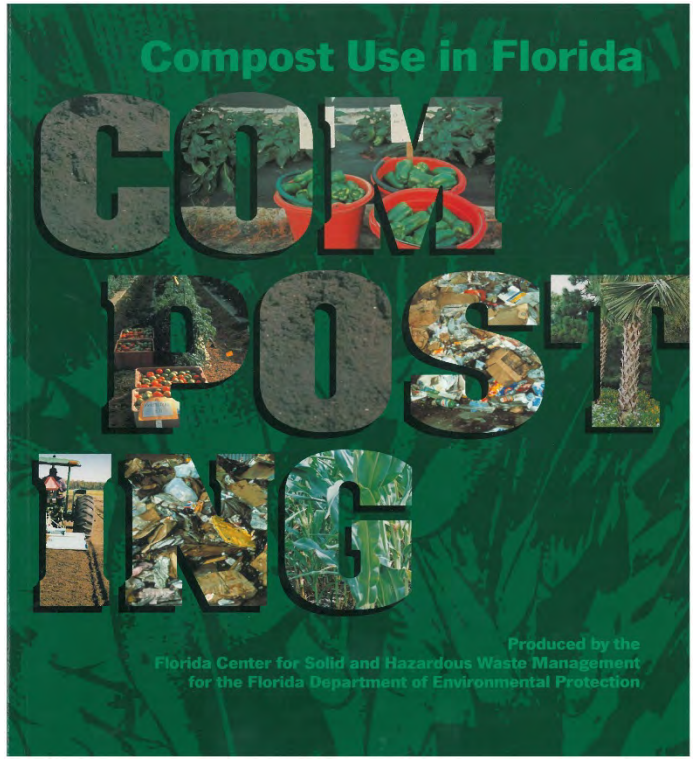
Rule Chapter 62-709: Criteria for Organics Processing and Recycling Facilities:

https://www.flrules.org/gateway/ChapterHome.asp?Chapter=62-709

Marketing & Research

Compost Use in Florida

Developed by the Florida Center for Solid and Hazardous Waste Management, December 1998



Recycling Yard Trash: Best Management Practices Manual for Florida

Developed by the industry to provide guidelines for operating yard trash processing facilities

Applicable Composting Rules

- Rule 62-701, F.A.C. – Solid Waste Management Facilities
- Rule 62-709, F.A.C. – Criteria for Organics Processing and Recycling Facilities
- Rule 62-640, F.A.C. – Biosolids

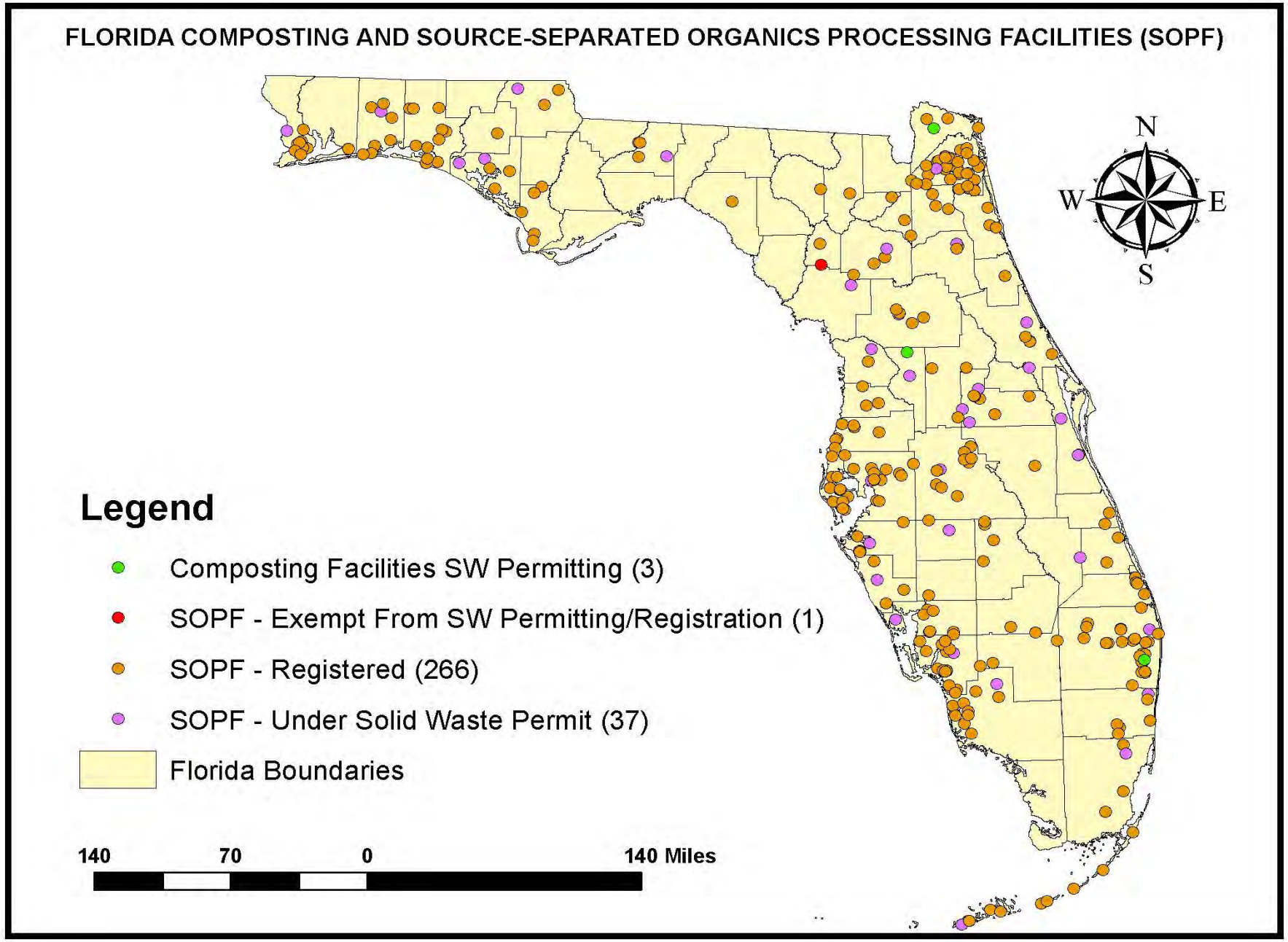
Types of Composting Permits

- Composting Facility Permit
  - Chapter 62-701, F.A.C.
  - Chapter 62-709, F.A.C.
  - Specific for certain activities – 5 years
- SOPF Registration
  - Chapter 62-709, F.A.C.
  - Limited to 1 year – must renew annually
- SOPF Exemptions – Normal farming operations
- Biosolids Processing Permit
  - Chapter 62-640, F.A.C.
  - Permit required – 5 years

Source-Separated Organics Processing Facility (SOPF)

- Facility that transfers, stores, or processes source separated organics, such as:
  - Yard trash (unprocessed trees, branches, leaves, mulch, etc.)
  - Vegetative (food) waste
  - Animal by-products
  - Manure/Manure Blending
- Facilities may also compost any combination of these materials at these facilities
- There are currently 307 SOPF's registered in Florida
- Registered/Under Permit SOPF:

http://www.dep.state.fl.us/waste/categories/solid_waste/pages/SOPF.htm


FLORIDA COMPOSTING AND SOURCE-SEPARATED ORGANICS PROCESSING FACILITIES (SOPF)
N
W
E
S
Legend
Composting Facilities SW Permitting (3)
SOPF - Exempt From SW Permitting/Registration (1)
SOPF - Registered (266)
SOPF - Under Solid Waste Permit (37)
Florida Boundaries
140
70
0
140 Miles

SOPF Regulations

- Operations that meet the criteria of Department rules shall **register** annually with the Department in lieu of obtaining a permit. If criteria are not met, they most obtain a solid waste management facility permit.

Operations Plan

- Design and operating requirements summary
  - Operational features and equipment necessary to maintain clean, orderly operation
  - Barrier to prevent unauthorized entry
  - Dust and litter control methods
  - Fire protection and control provisions
  - Control vectors and objectionable odors
  - Materials processed/removed timely
  - Maintain records of incoming and outgoing material

Processing Time Frames

- Incoming materials
  - Yard trash must be size-reduced within 6 months, or within a period required to received 3,000 tons or 12,000 CY (whichever is greater)
  - Putrescible must be incorporated within 48 hours
- Processed materials
  - Processed mulch, compost, etc. must be removed from the property within 18 months.

Fire Protection and Control

- Fire protection and control provisions to prevent accidental burning of solid waste:
  - All weather, 20 foot access road
  - No materials shall be mechanically compacted
  - No materials shall be more than 50 foots from access by motorized fire fighting equipment
    - i.e. pile width no more than 100’

Equipment, Facility Design

- Typical Equipment:
  - Front end loader, excavator, bob cat
  - Grinder – horizontal vs. tub grinder
  - Water truck
  - Haul vehicles

- Facility design:
  - Barrier to prevent unauthorized entry
  - Perimeter roads
  - Setbacks in Chapter 62-701, F.A.C.
    - 100’ potable well
    - 50’ from waterbody/wetland (does not include onsite water body that does not discharge offsite.)

Yard Trash Processing/Composting Facility

Composting Facility

- Solid waste management facility where solid waste is processed using composting technology.
- Processing may include physical turning, windrowing, aeration or other mechanical handling of organic matter.
- Facility using composting technology for treatment of biosolids.

Compost Classification

- Type Y - Only yard trash
- Type YM - Vegetative waste, animal by product or manure, with or without yard trash
- Type A - Solid waste other than yard trash other than only yard trash, vegetative waste, animal byproducts or manure; Mature and is fine.
- Type B - Solid waste other than yard trash other than only yard trash, vegetative waste, animal byproducts or manure; Mature or semi-mature, fine or medium

Classification

- Type C - Solid waste, other than only yard trash, vegetative waste, animal byproducts or manure; Mature or semi-mature and is fine, medium, or coarse
- Type D - Fresh, fine medium or coarse
- Type E - Metal concentration, under code 4
- Biosolids - Class AA

Use of Compost

- Types Y, YM or A
  - Unrestricted distribution
- Types B or C
  - Restricted to use by commercial, agricultural, institutional or governmental operations
  - Only B can be used in general public – parks
- Type D
  - Used only at landfills and reclamation projects
- Types E
  - Disposal pursuant to Chapter 62-701, F.A.C.

Compost Permit - Requirements

- Regulate the production and use of compost made from solid waste:
  - Engineer of record and professional certification
  - Facility design
  - Site plan showing the location of all property boundaries certified by a Florida licensed professional surveyor and mapper
  - Performance and design standard
    - Support for operation
    - Leachate controls and removal system performance
    - Storm water management system

Records/Reporting

- Records must be maintained for 3 years
  - Analytical results on compost testing
  - Quantity, type and source of waste received
  - Quantity and type of waste processed into compost
  - Quantity and type of compost produced by product classification; and
  - Quantity and type of compost removed for use or disposal, by product classification, and the market or permitted disposal facility.
  - Quarterly submittal – finished compost analyses (District)
  - Annual report submittal to DEP – June 1 of each year

Contact Information

Lauren O’Connor
Florida Department of Environmental Protection
Waste Registration Section
Lauren.oconnor@dep.state.fl.us
850-245-8756

Florida Department of Environmental Protection

Waste Reduction/Recycling

Robin Safley

Executive Director
Florida Assoc of Food Banks





Robin Safley

Executive Director, Florida Association of Food Banks

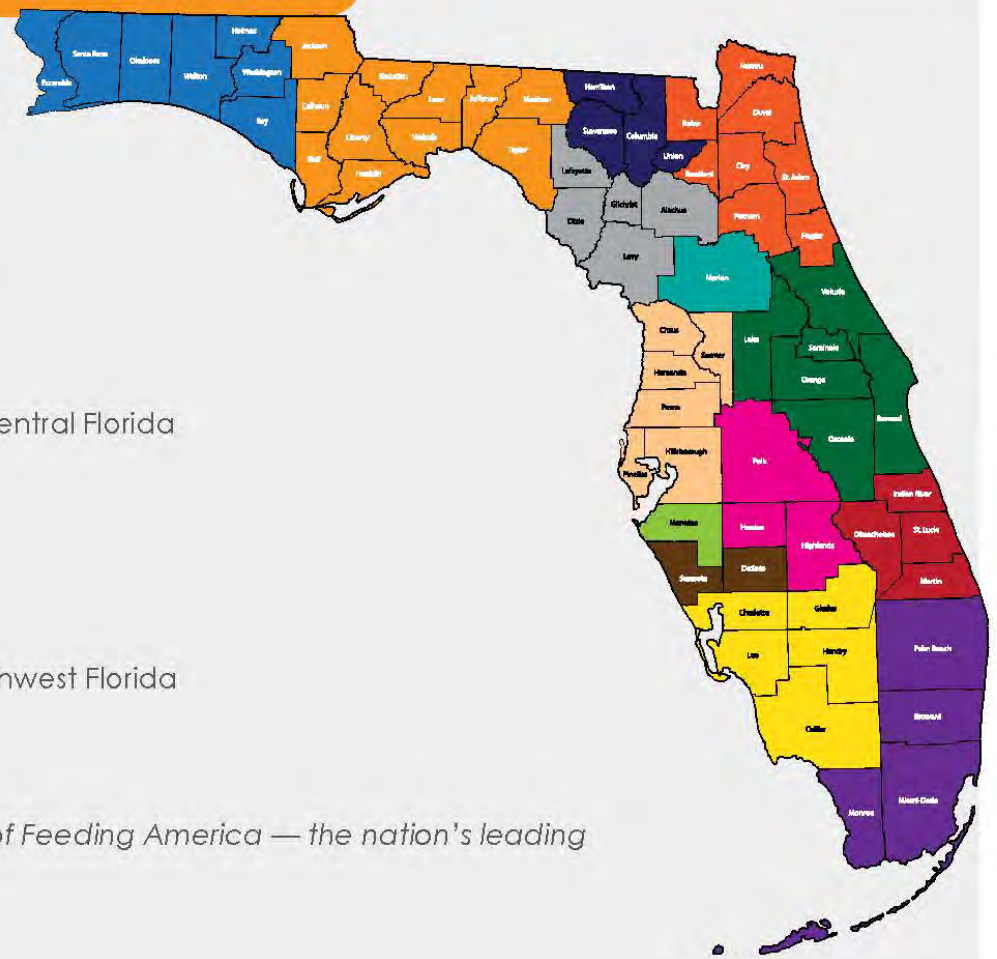
FAFB.org

FLORIDA ASSOCIATION OF FOOD BANKS

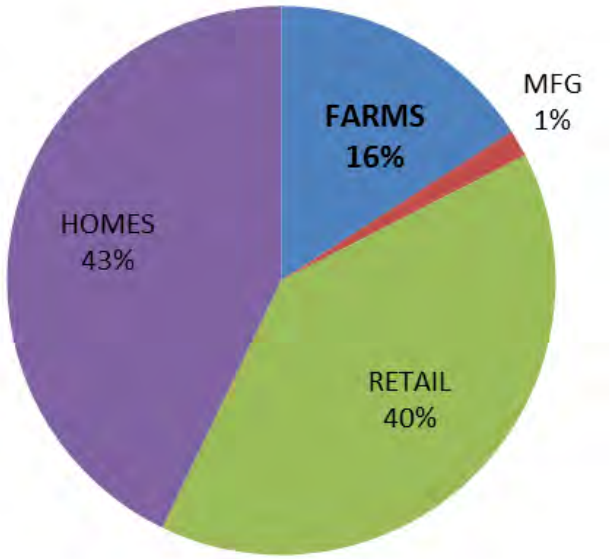
PARTNER STATE ASSOCIATION OF FEEDING AMERICA

WHERE WE ARE IN YOUR COMMUNITY

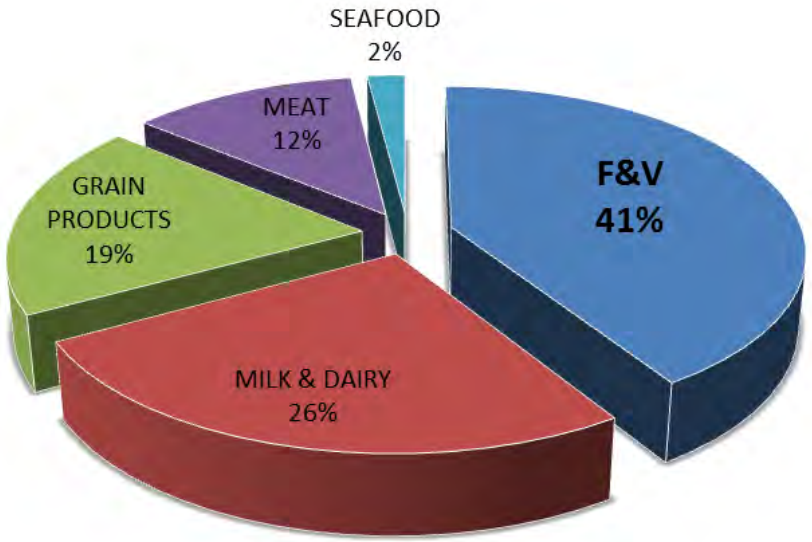
- Feeding the Gulf Coast
- Second Harvest of the Big Bend
- Florida Gateway Food Bank
- Feeding Northeast Florida
- Bread of the Mighty Food Bank
- First Step Food Bank
- Feeding Tampa Bay
- Second Harvest Food Bank of Central Florida
- The Food Bank of Manatee
- Agape Food Bank
- Treasure Coast Food Bank
- All Faiths Food Bank
- Harry Chapin Food Bank of Southwest Florida
- Feeding South Florida



FAFB is a Partner State Association of Feeding America — the nation's leading domestic hunger-relief charity.

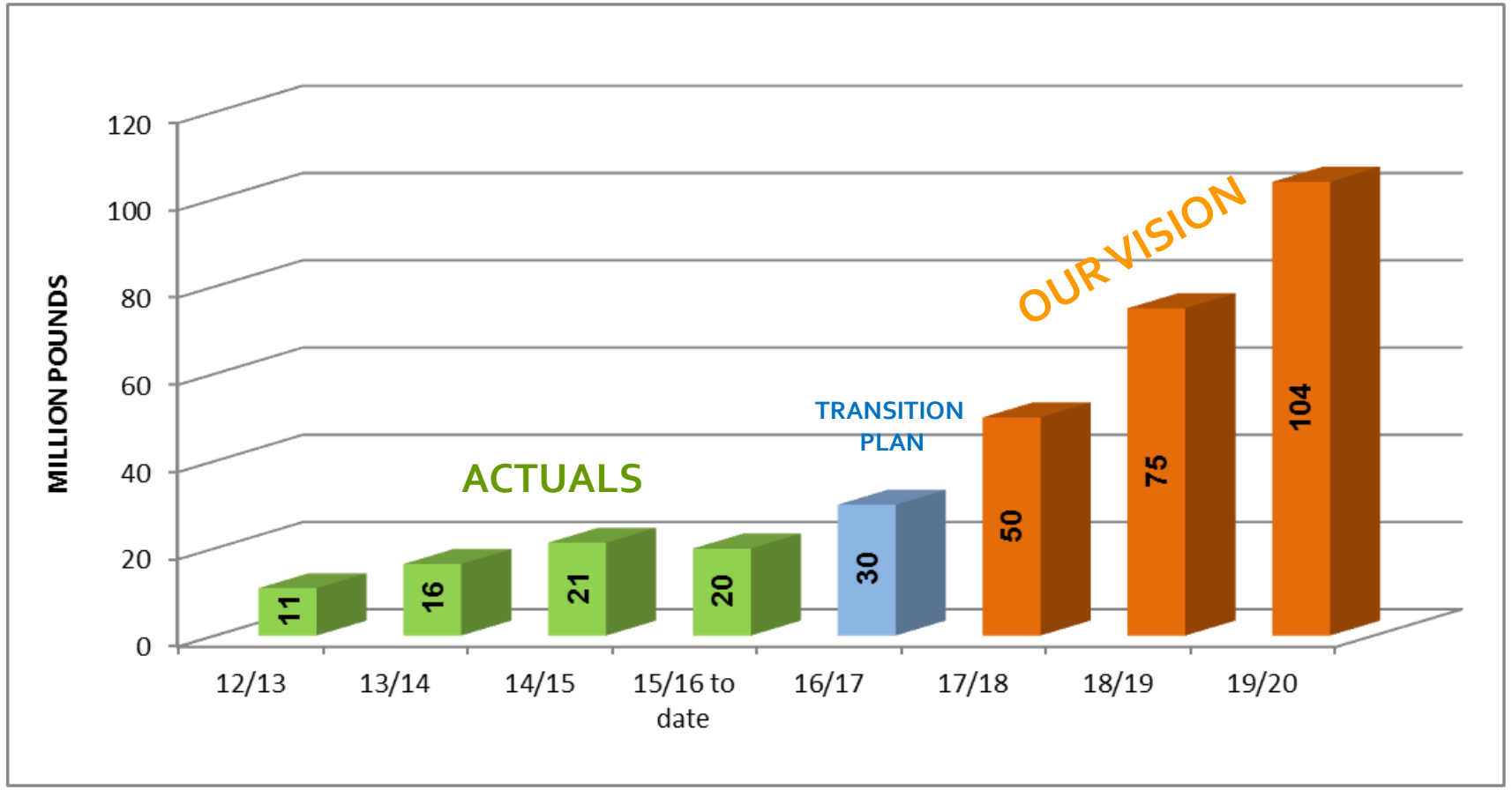


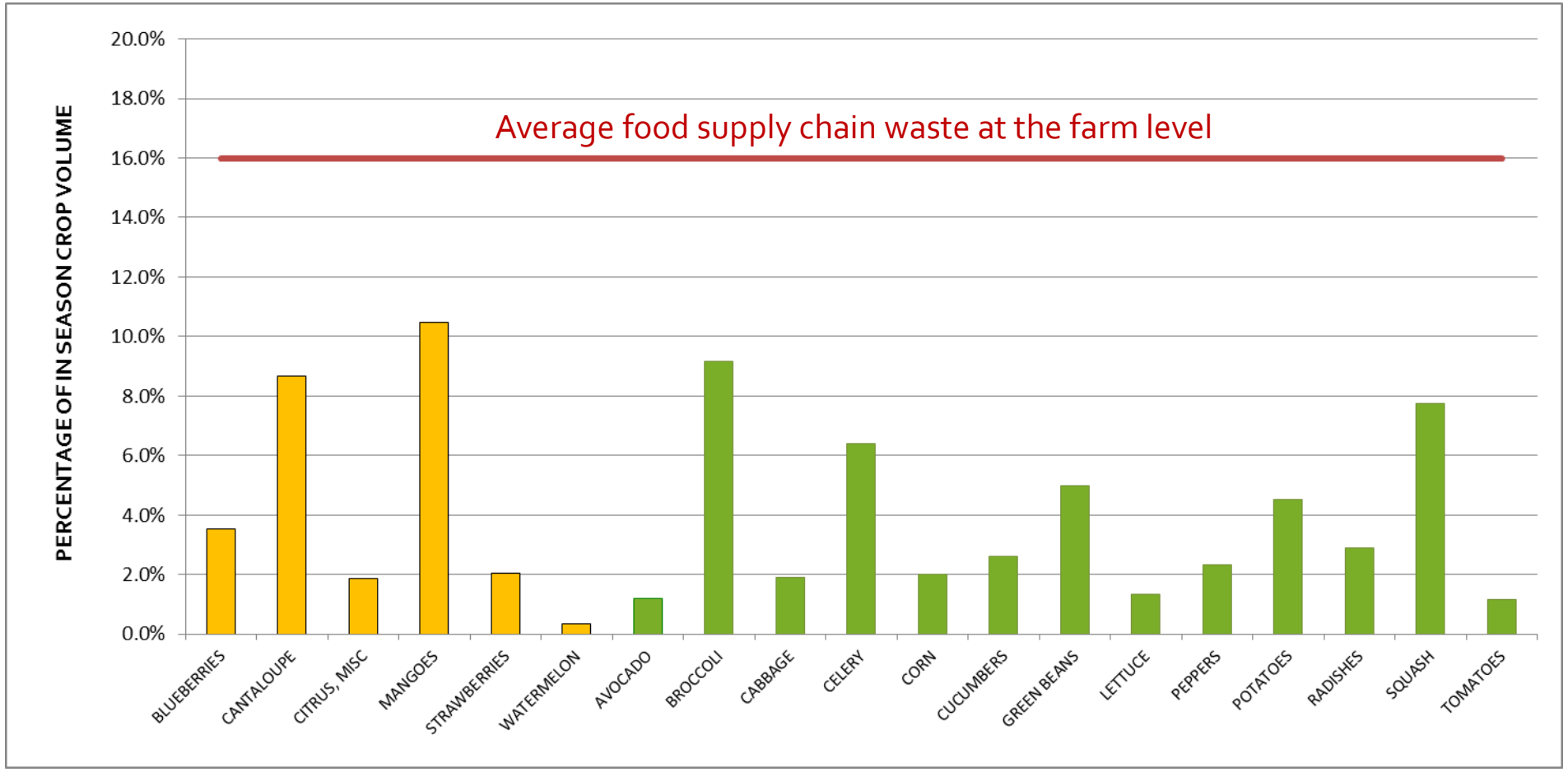
US Food Waste by Weight



US Food Waste by Type

Major Florida crop potential recovery pounds = 156,000,000


MILLION POUNDS
120
100
80
60
40
20
0
ACTUALS
TRANSITION PLAN
OUR VISION
11
16
21
20
30
50
75
104
12/13
13/14
14/15
15/16 to date
16/17
17/18
18/19
19/20


PERCENTAGE OF IN SEASON CROP VOLUME
20.0%
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
Average food supply chain waste at the farm level
BLUEBERRIES
CANTALOUPE
CITRUS, MISC
MANGOES
STRAWBERRIES
WATERMELON
AVOCADO
BROCCOLI
CABBAGE
CELERY
CORN
CUCUMBERS
GREEN BEANS
LETTUCE
PEPPERS
POTATOES
RADISHES
SQUASH
TOMATOES

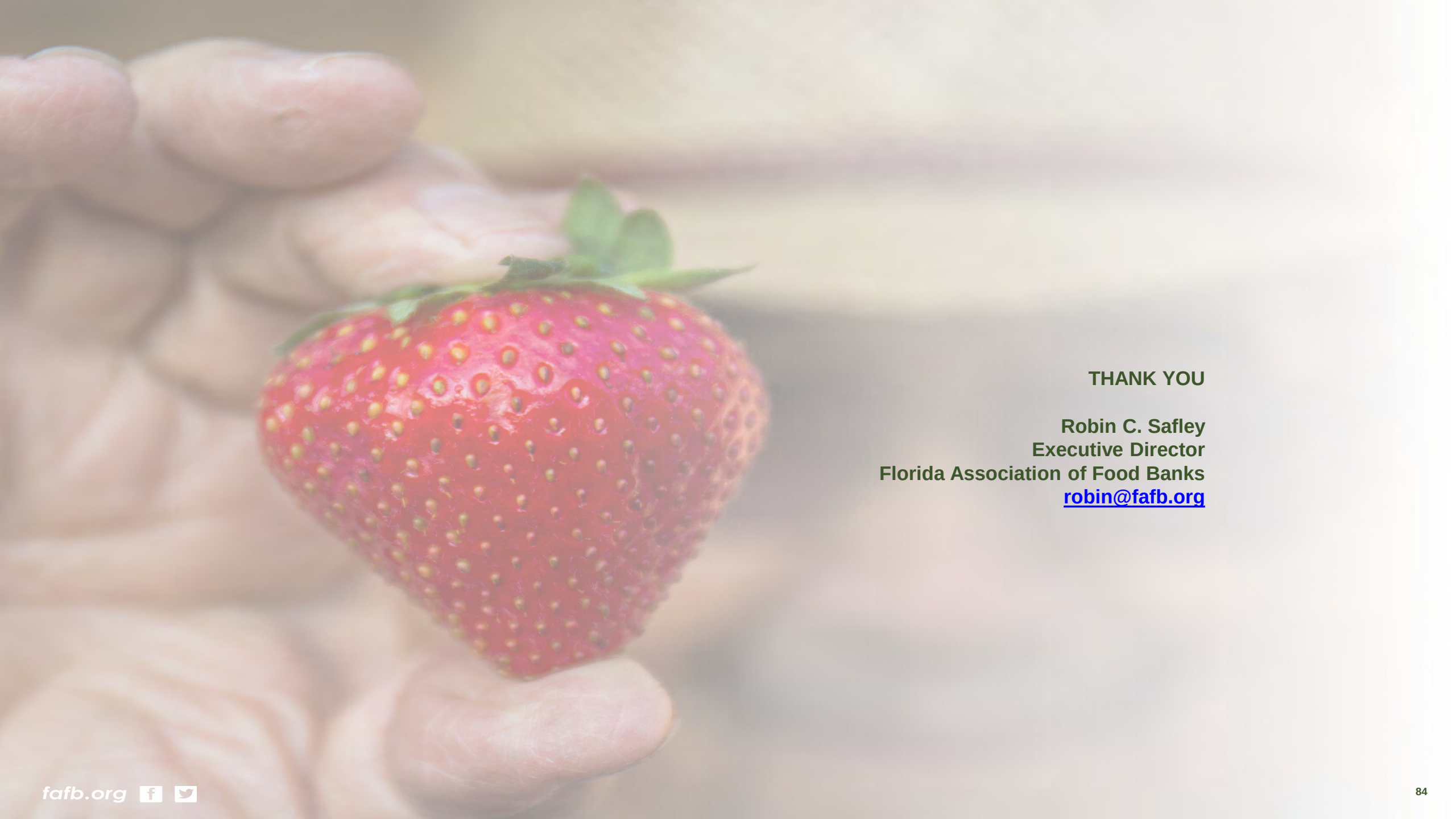

Load planning
Forward vision
Frequency
Locations
Continuity of Supply
Grading
Cull points
Packaging
Waste
Quality
Variety
Client Fatigue
Seasonality
Acceptance
Price
PPO
No cost
Other elements
Tax credits

DISTANCES
FOOD BANK CAPACITY
MARKET CONDITIONS
WEATHER

AVERAGE = $4,550 PER TRUCKLOAD

100,000,000 POUNDS

$11.4 MILLION



THANK YOU

Robin C. Safley
Executive Director
Florida Association of Food Banks
robin@fafb.org

Florida Department of Environmental Protection

Waste Reduction/Recycling

Brenda Platt

Co-Director
Institute for Local Self-Reliance



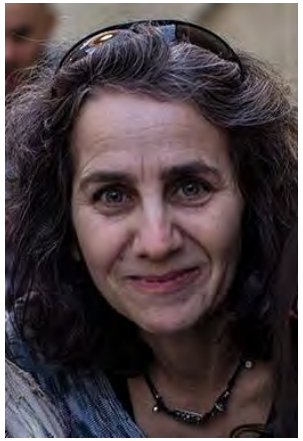




Developing Composting Infrastructure to Build Community

Brenda Platt
Director, Composting Makes ene Project
Institute for Local Self-Reliance
bplatt@ilsr.org

May 25th, 2016, Managing Florida's Organics: Part II "Strategies & Directions"
FL DEP WEBINAR



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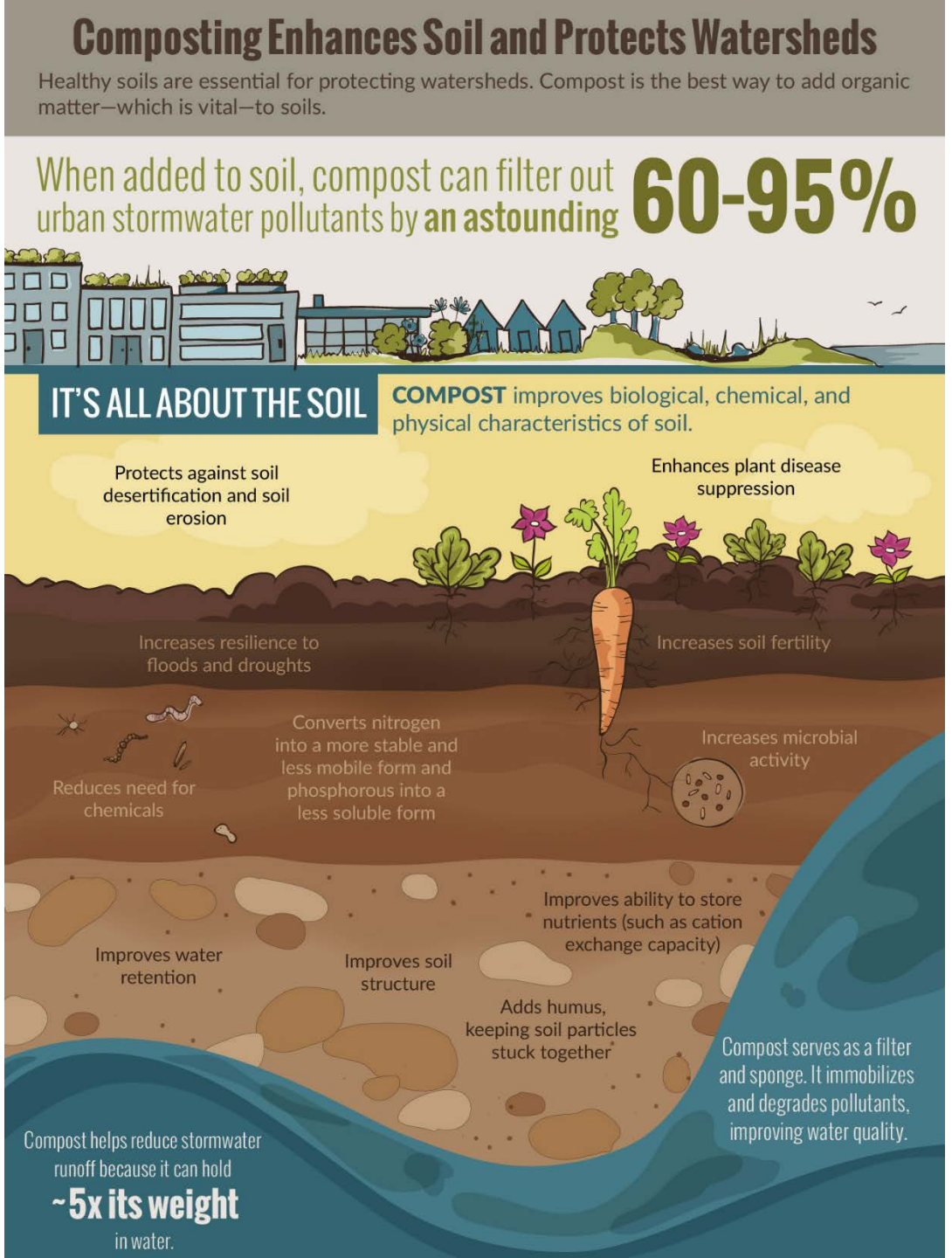
Infographics:
ilsr.org/compost-impacts



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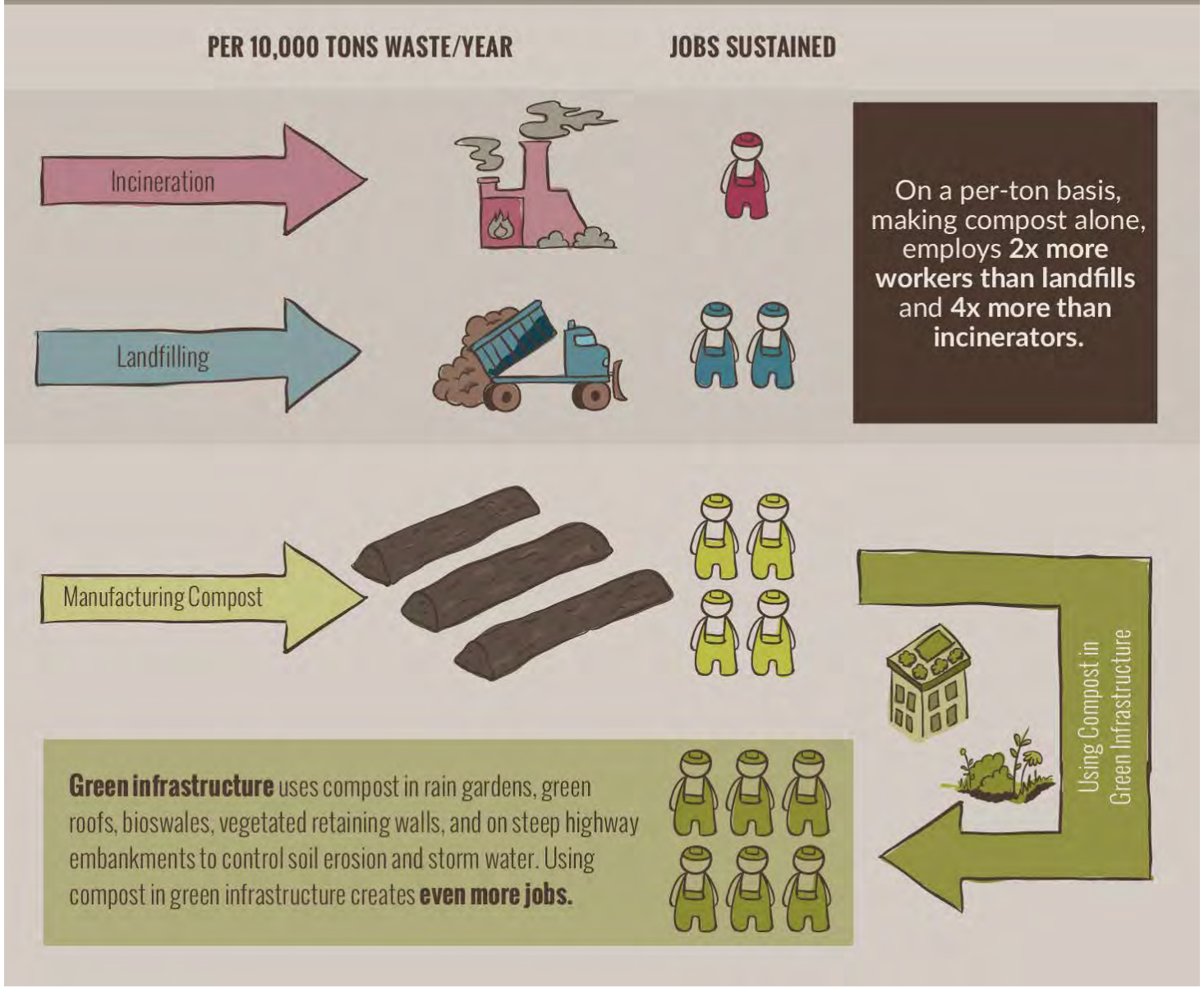
Composting Creates Jobs

Jobs are sustained in each stage of the organics recovery cycle.



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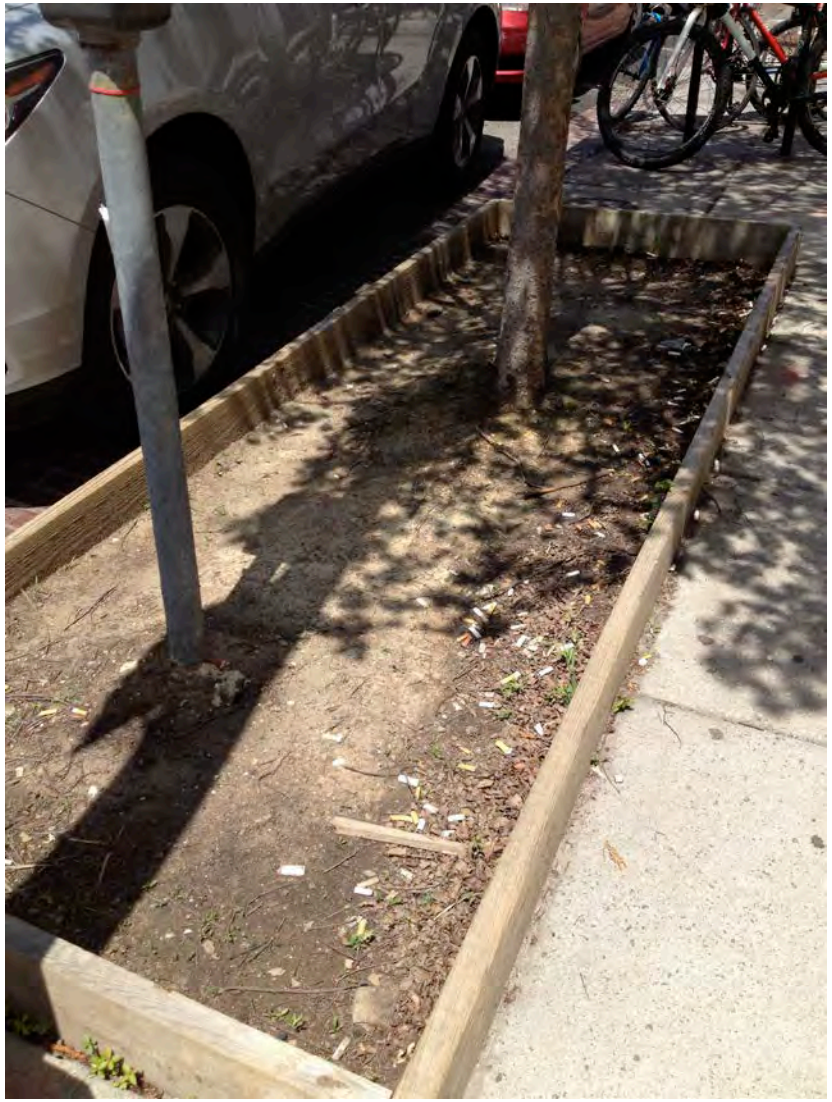
MCS Inc., www.mcsnjinc.com

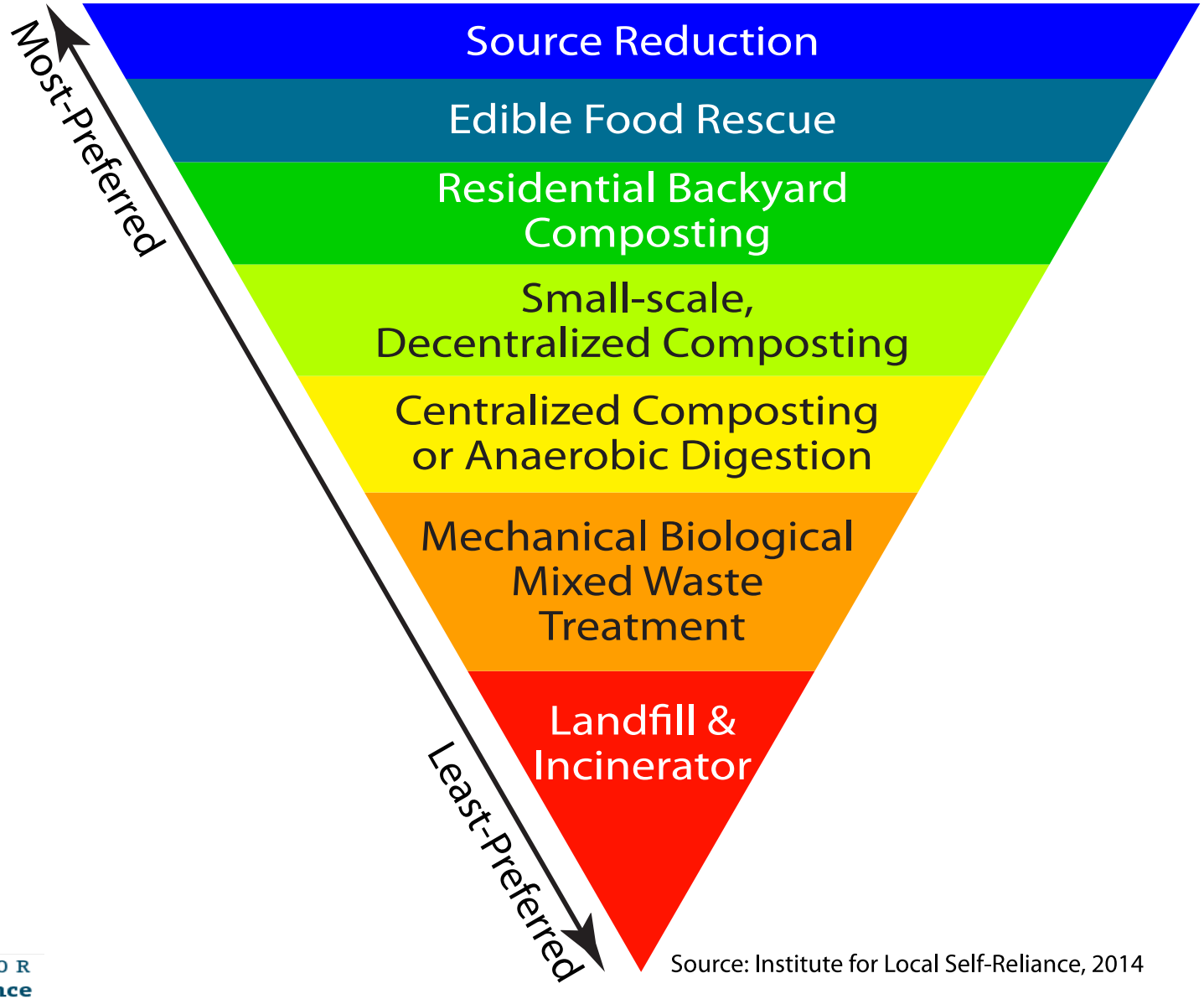
Composting, lots of ways

Trend to rely on large-scale far-away compost sites

Makes It Harder to Improve Local Soil



Hierarchy For Reducing & Recycling Food Scraps And Other Organic Discards



Source: Institute for Local Self-Reliance, 2014

ILSR INSTITUTE FOR Local Self-Reliance

Orlando – Get Dirty for Valentine's Day


SECTIONS SEARCH Orlando Sentinel

THURSDAY MAY 19, 2016 ALL SECTIONS NEWS SPORTS BUSINESS CLASSIFIED OBITUARIES ENTERTAINMENT TRAVEL

Orlando suggests something 'dirty' for Valentine's Day

- FREE bins to City of Orlando residents
  - Free home delivery
  - Assembled
  - The Earth Machine
- Launch February 14, 2015 "Get Dirty" Campaign
  - Get Dirty for Valentine's Day
  - Get Dirty with Your Neighbors
- 3,068 delivered as of April 2016

ILSR INSTITUTE FOR Local Self-Reliance

Cheverly, MD, shows 25% of residents will backyard compost, saving money on collection and disposal fees

- April 2011, backyard composting program
- 25% of 1,600 single-family homes participating
- ~100 tons per year composted
- ~$6,000 in avoided disposal fees/year
- Total savings expected to be $120,000 over 20 years
- A dozen municipalities have implemented the program (including Bowie, Greenbelt, Mount Rainier, Berwyn Heights, Colmar Manor & Brentwood).

ILSR INSTITUTE FOR Local Self-Reliance

Source: Doug Alexander, NIE Institute, Landover Hills, MD

Farmers Need Particular Support

farm and farmer

INSTITUTE FOR
Local Self-Reliance

GROWING LOCAL FERTILITY: A GUIDE TO COMMUNITY COMPOSTING

A COLLABORATION OF
HIGHFIELDS CENTER FOR COMPOSTING
AND THE INSTITUTE FOR LOCAL SELF-RELIANCE

Principles of Community Composting

- Resources recovered
- Locally based and closed loop
- Organic materials returned to soils
- Community-scaled and diverse
- Community engaged, empowered, and educated
- Community supported

Download the free* Growing Local Fertility: A Guide to Community Composting *at www.ilsr.org/growing-local-fertility

Compost builds community!

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Types of Community Programs

1. Community gardens
2. Farms
3. Schools
4. Drop-off networks
5. Collection entrepreneurs
6. On-site composters
7. Off-site composters
8. Demonstration and community leader training sites
9. Worker-owned cooperatives
10. Home-based or homesteader hubs

Philly Compost offers pedal-powered collection service to neighboring restaurants within a 2-mile radius (Philadelphia)

Drop-off Network

Home Services News/FAQ Partners Resources 19125 Product Us

Neighborhood Compost Map

Finding a Composting Site in your Neighborhood

Gardeners and confident composters: share your experience and your bins! You know that the best way to keep organics out of the waste stream is to compost in your own backyard. The reasons are many:

> no emissions from transporting organics
> low tech
> least expensive

"The map is such an awesome resource!"
- unsolicited email, Philadelphia resident

By placing yourself on the Philly Compost Map, you're not only showing overwhelming interest in composting, you'll also help us quantify reduced carbon and methane emissions for our region. The more composters, the better for the planet!

Compost sites on the Map are color coded:

- Shared community sites are **purple**. We ask donors to check with the Site Host before contributing. If your site can accept more organics, or already has more than your household contributing to it, we ask you to share it.
- Private sites are **red**. We ask that everyone check with the site contact before visiting. if your site cannot handle more organics, or is in a hard-to-access space, we suggest you list it as a private site.
- Yellow sites are folks that would love to find a shared site nearby. If your compost site is near one of these, please contact that neighbor and share your bin!
- Commercial sites are **green**. We're coming soon to Germantown!
- City sites are **blue**.

To add your site to the map:

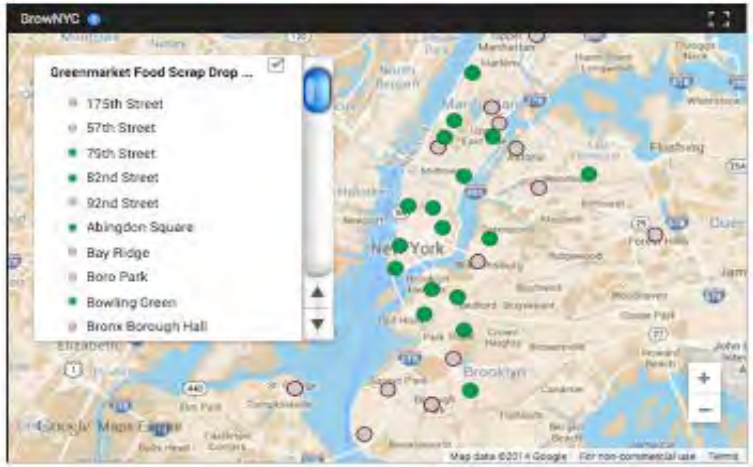
- When viewing the map, click on the Edit button along the left side bar
  If you don't see an Edit button, you'll need to log in to your Google account. If you don't have one, and don't want to create one, send an email to us with the location of your compost site.
- After you click the Edit button, you'll see options along the top left of the map itself.
- If you are clicked onto a point, you will be directed to edit just that point. To create a new point, make sure your cursor is not clicked on anything.
- Click on the placemark icon (looks like a tear drop) and position it where you'd like.
  Or ... while you have the map visible, enter a street address in the map search bar, and select Save to My Map, then to Philly Compost.
- Change teardrop color to red (for private) or purple (for shared) site, and add any other descriptive text to the text box.
- Click the Done button when you are finished (over to the left, where the Edit button was).

GREENMARKET FOOD SCRAP COLLECTION SCHEDULE

GrowNYC currently offers food scrap collection at 35 Greenmarket locations. Consult our main compost page for a guide of what we do and do not accept.

Please adhere to the drop-off schedule at each location. Food scraps cannot be accepted after stated hours. All locations are year-round unless noted otherwise.

In cases of severe winter weather, markets may close early or be cancelled. Please drop early and check our blog or follow us on social media for schedule updates.



Partner Key:
DSNY = NYC Department of Sanitation
GrowNYC = GrowNYC + Community Partners
LES Ecology Center = Lower East Side Ecology Center
SIRCompost [formerly Western Queens Compost Initiative] (NYC Compost Project)
Battery = Battery Conservancy
NYRP = New York Restoration Project

BOROUGH	GREENMARKET	DAY	TIME	PARTNER
Bronx	Bronx Borough Hall Greenmarket Grand Concourse & 161st St	Closed until Spring. Dates Pending.	8am-2pm	GrowNYC
Bronx	Poe Park Greenmarket Grand Concourse & 192nd St	Closed until Spring. Dates Pending.	8am-1:30pm	GrowNYC
Brooklyn	Bay Ridge Greenmarket 3rd Ave & 95th St	Closed until Spring. Dates Pending.	8am-1pm	DSNY

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New York Compost Project, New York City

INSTITUTE FOR Local Self-Reliance

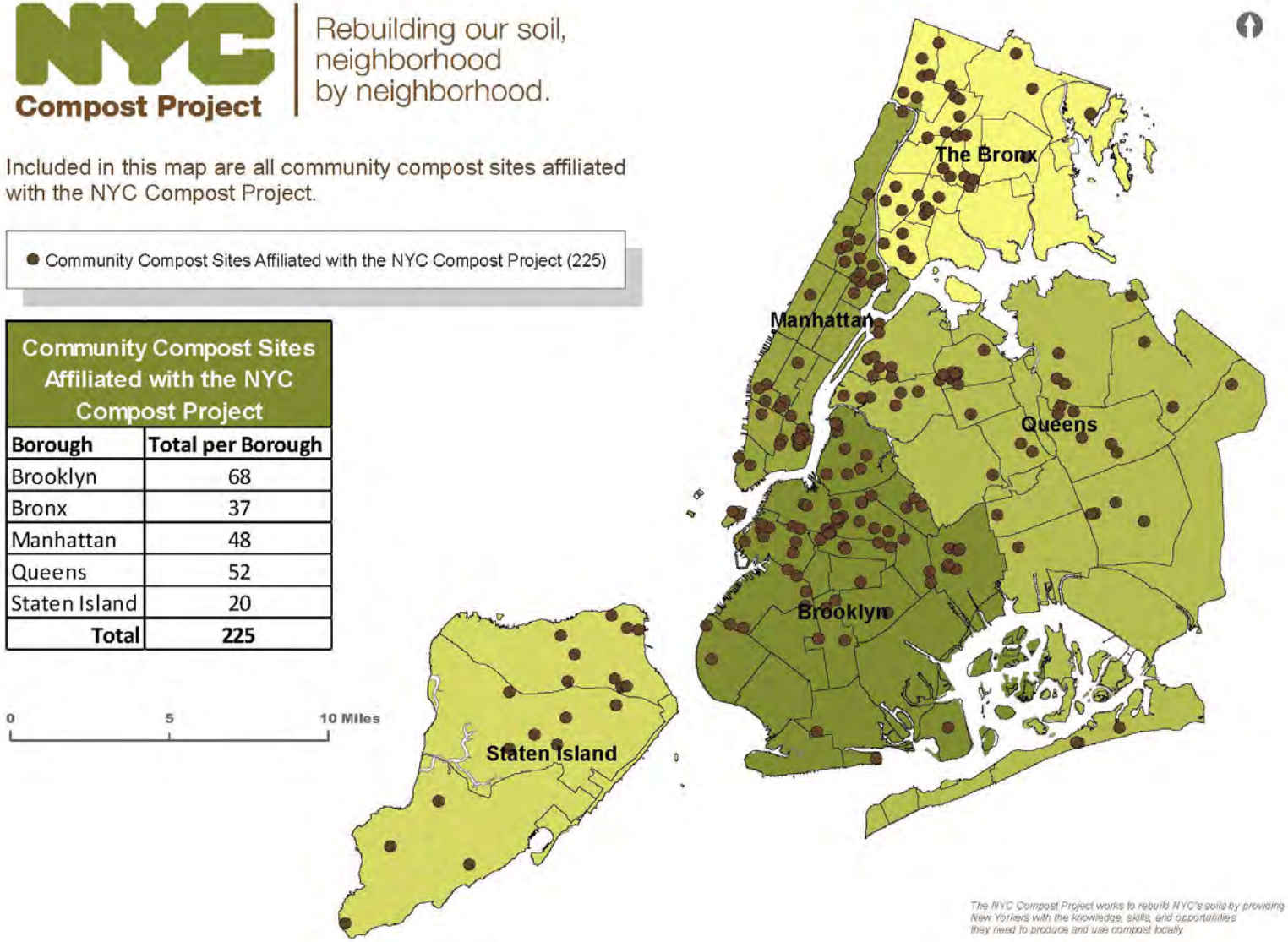
NYC Compost Project

Rebuilding our soil, neighborhood by neighborhood.

Included in this map are all community compost sites affiliated with the NYC Compost Project.

● Community Compost Sites Affiliated with the NYC Compost Project (225)

Community Compost Sites Affiliated with the NYC Compost Project	
Borough	**Total per Borough**
Brooklyn	68
Bronx	37
Manhattan	48
Queens	52
Staten Island	20
Total	**225**



The NYC Compost Project works to rebuild NYC's soils by providing New Yorkers with the knowledge, skills, and opportunities they need to produce and use compost locally.

The project is funded and managed by the NYC Department of Sanitation's Bureau of Waste Prevention, Reuse and Recycling. Learn more at nyc.gov/compostproject.

IISR

NYC Compost Project

Community Gardens

myrtle village green

Ground To Earth
Contributors

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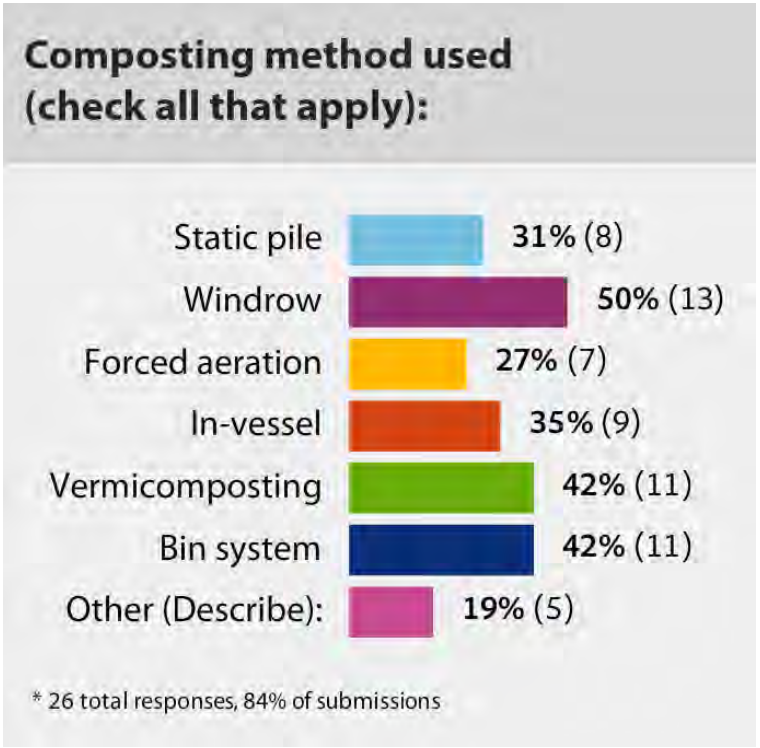
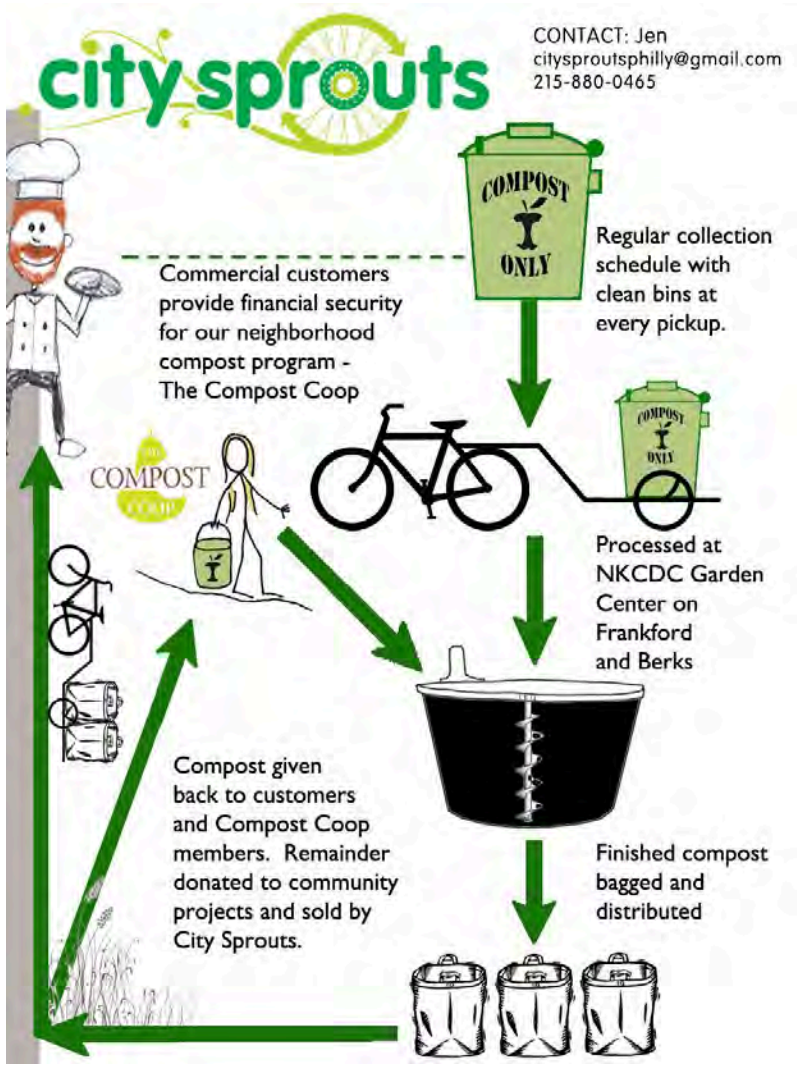


Earth Tub in-vessel compost system at Philly Compost (Philadelphia)

Building a windrow by hand at Red Hook Community Farm (Brooklyn, NY)

City Sprouts, Philadelphia



Collection Entrepreneurs

city sprouts
sustainable services

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Gainesville Compost

Gainesville COMPOST
From Waste to Food

BIKECOMPOST

ILSR INSTITUTE FOR Local Self-Reliance

Urban Farms

Red Hook Community Farm

Growing Power

ECO City Farms

Volunteers Are Important
Training Operators Is Critical

The NYC Compost Project cultivates community leaders through its ***Master Composter Certificate Program***.

These leaders volunteer their time to conduct public workshops, provide community outreach, bring people to gardens, and spread compost.

Neighborhood Soil Rebuilders (NSR) Composter Training Program

We're looking for partner communities to replicate this program!

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Schools are vital


Harriet Tubman ES, DC


Berwyn Heights ES, MD


EW Stokes Public Charter School, DC

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Continuous Flow Systems – No pitchforks needed

All Saints Regional Catholic school, NJ

Ripowam Cisqua School, NY

Chatham School, NJ

Kingsway Regional School, NJ

Frostburg University in Maryland

Stevenson School, CA

Roscoe School, NY

Ramapo College, NJ

Montclair State College, NJ

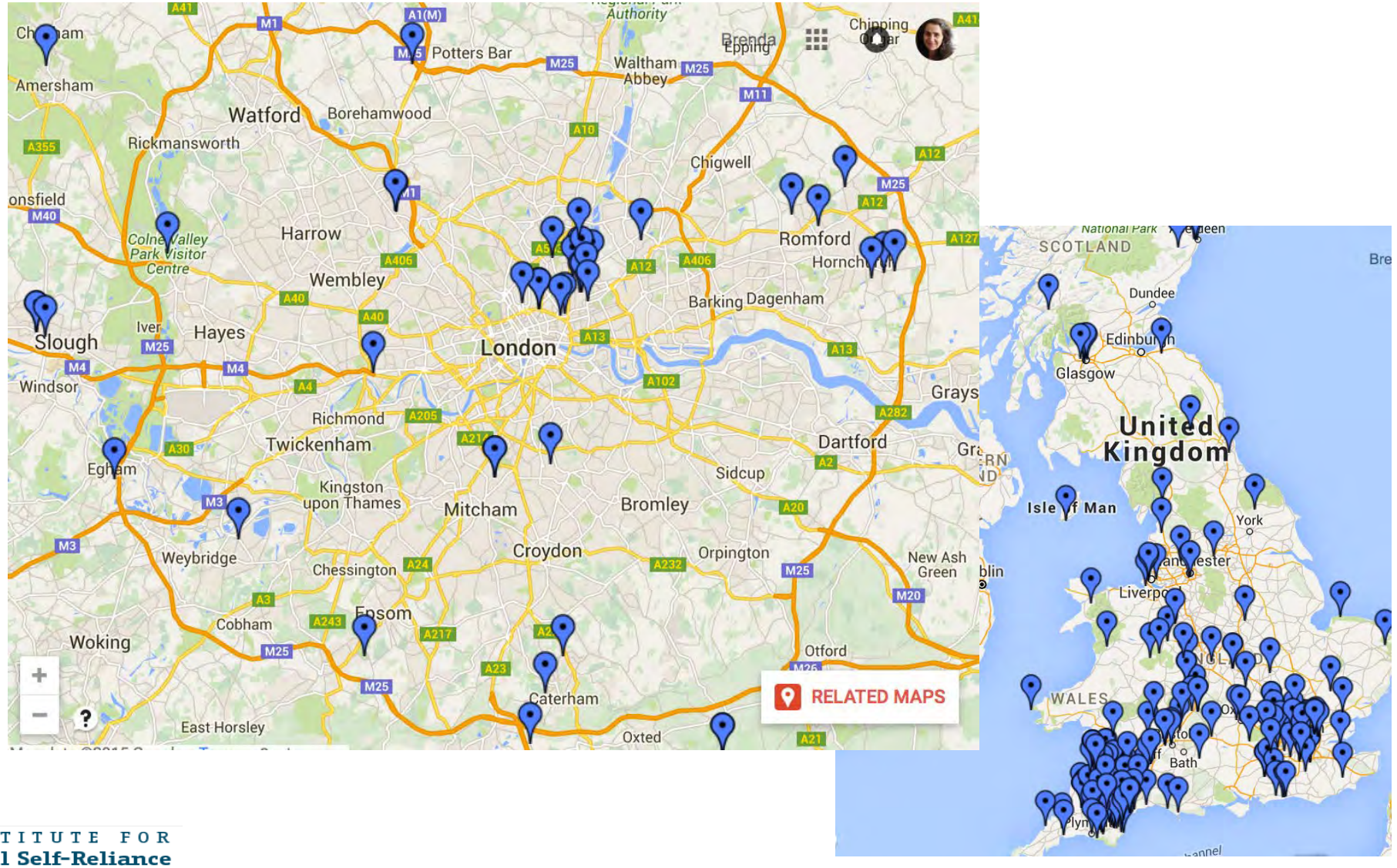
IISR

NATH
Sustainable Solutions

Ridan Composter

Children with Ridan Composter at Benthal Primary School, London (Hackney Council)

Ridan Composter Locations (sample)



INSTITUTE FOR Local Self-Reliance

Ramona Unified School District (CA)

2014-2015

Source reduction = 2,860 lbs.

- Fed people = 7,280 lbs.
- Fed animals = 3,840 lbs.
- Composted = 6,576 lbs.

- A cost benefit of more than $18,000 for RUSD in 2015.

Compost Connoisseurs

Delivering to the food pantry.

Gloria Quinn, Ramona Unified School District, "School District Implements Food Recovery Hierarchy," BioCycle, April 6, 2016, San Diego.

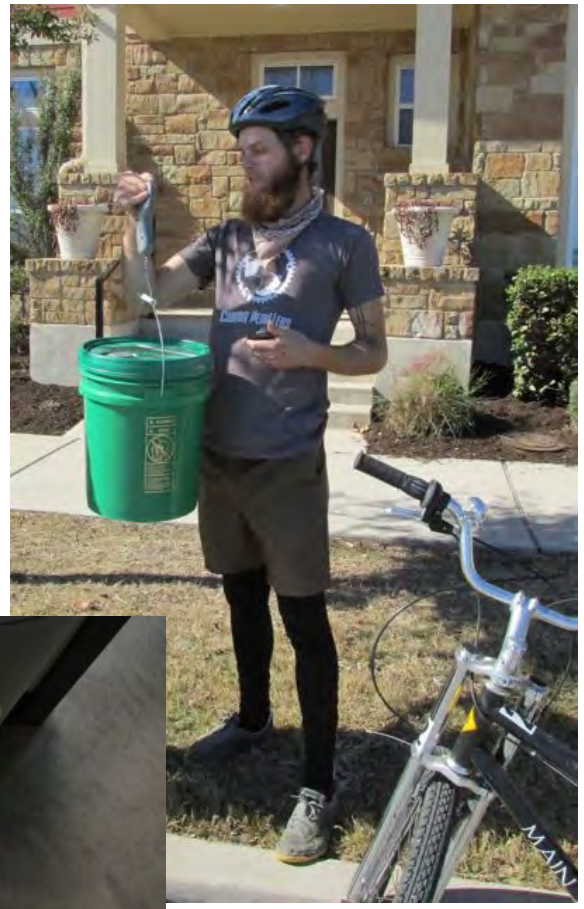
Austin zero waste plan

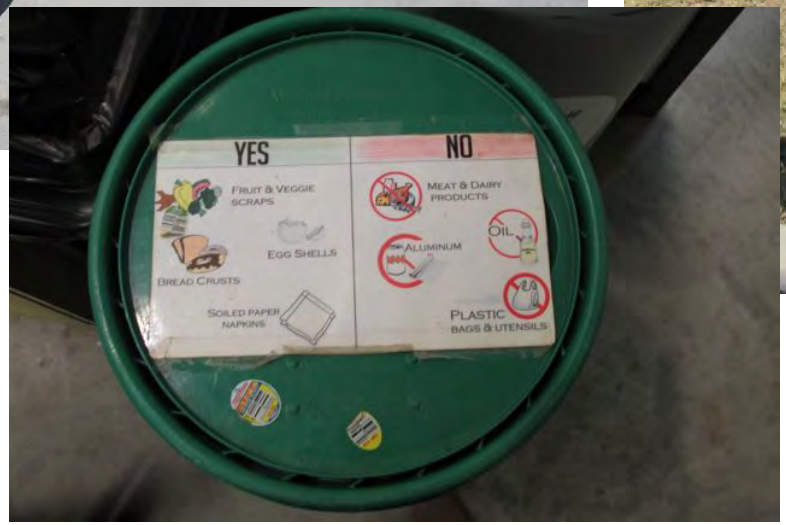
"…decentralized composting processes can reduce the carbon footprint of collection and transportation while consuming organics in more localized situations that do not require large organized collection programs."

"The Department recognizes that, in addition to helping the City achieve its Zero Waste goals, composting also addresses the community's interest in enriching the region's soil, strengthening sustainable food production and completing the food cycle."

The Austin Resource Recovery Master Plan (December 2011), pp. 105-106. http://www.austintexas.gov//sites/default/files/files/Trash_and_Recycling/MasterPlan_Final_12.30.pdf

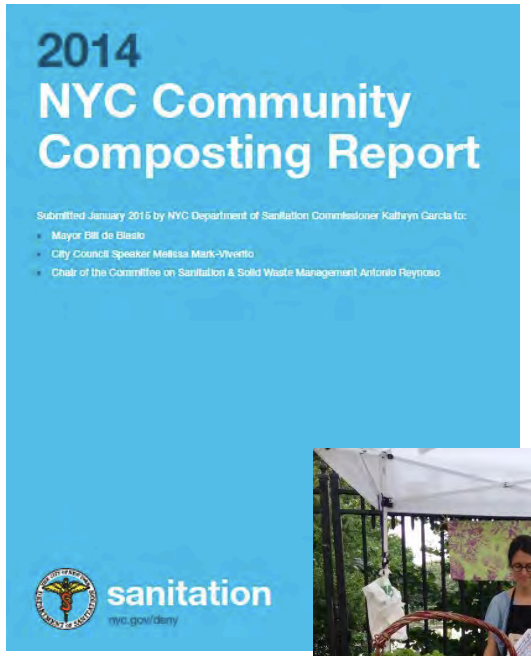
Compost Peddlars (Austin)





Compost Peddlars (Austin)

NYC Supports Community Composting



DSNY Organic Waste Diversion Strategy:

DSNY believes that a strong organic waste diversion strategy for NYC will operate at three scales:

① at a citywide level,

② in communities and neighborhoods, and

③ in the home.

This tiered approach enables the City to divert the greatest amount of organic waste from landfills; build support for and participation in organic waste recycling; and generate high-quality finished compost in NYC to improve soils and public health.

BioCycle PRESENT

cultivating community composting

January 26, 2016 • Jacksonville, FL

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What can you do? Some ideas…

- Policy to support diversified infrastructure
- Access to land & funding support
- Technical assistance and tools for locally based systems
- Model locally based systems
- Master Composter Training Program
- Replicate the Neighborhood Soil Rebuilders Composter Training Program
- Procurement of finished compost
- Spur adequate equipment for small-scale systems
- Promote pay-as-you-throw trash fee[illegible] reinvest savings into communities (e.g., community composting, community solar)

Photos: NYC Compost Project

Florida Department of Environmental Protection

Waste Reduction/Recycling

Hunt Briggs

Recycling Resource Systems

Roadmap to Reduce U.S. Food Waste

Managing Florida's Organics: Part II

May 25

Hunt Briggs, RRS

ReFED | Rethink Food Waste *Through Economics & Data*

What is the ReFED *Roadmap?*

ReFED is a nonprofit collaboration formed in 2015 of over 30 business, nonprofit, foundation and government leaders committed to reducing food waste in the United States.

On March 9th, ReFED launched *A Roadmap to Reduce U.S. Food Waste by 20 Percent,* the first ever national economic study and action plan driven by a multi-stakeholder group committed to tackling food waste at scale.

AWARENESS

- Amount of food wasted
- Causes of that waste
- Impacts on the environment & economy

ACTION

- Reduction/ prevention
- Recovery
- Reuse/ Recycle

ReFED Steering Committee, Advisory Council, and *Roadmap* Team

THE PROBLEM OF FOOD WASTE

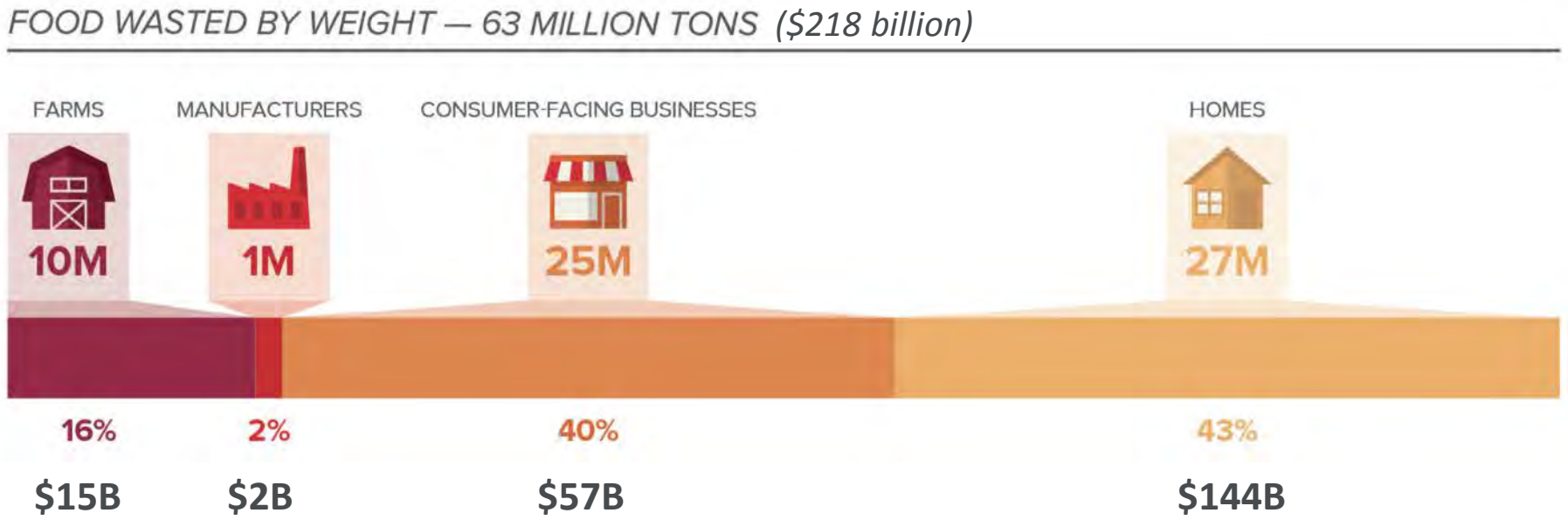
The Baseline Problem in the US

Every year, American consumers, businesses and farms spend $218 billion (roughly 1.3% of GDP) on food that is never eaten

U.S. Food Waste utilizes:

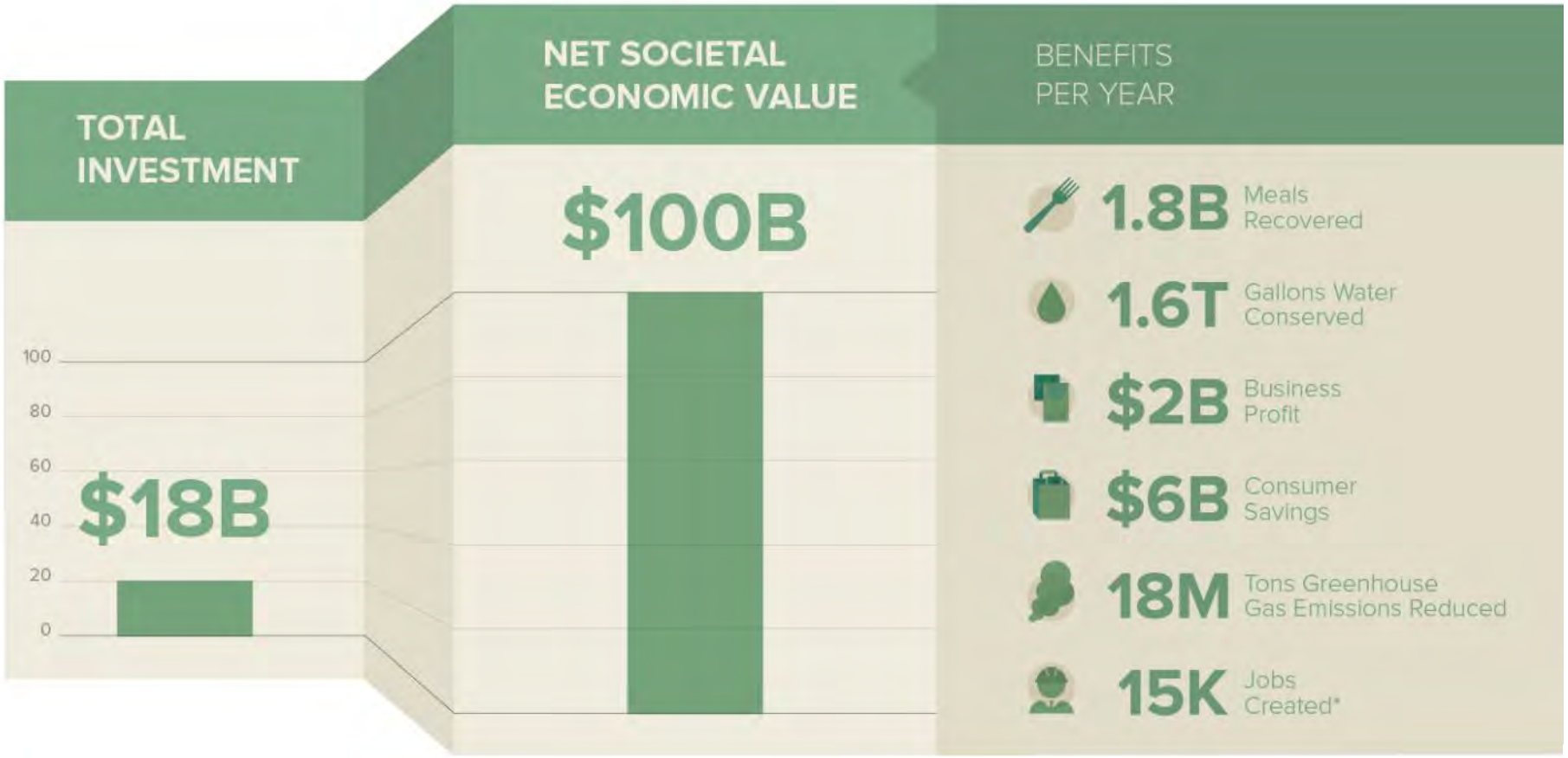
- 18% of Cropland
- 19% of Fertilizer
- 21% of Freshwater
- 21% of landfill volume

ReFED Food Waste Baseline: Nearly 63M tons of waste per year



THE SOLUTIONS AND ECONOMIC ANALYSIS

AN $18 BILLION INVESTMENT IN 27 SOLUTIONS TO REDUCE U.S. FOOD WASTE BY 20% WILL YIELD $100 BILLION IN SOCIETAL ECONOMIC VALUE OVER A DECADE



ReFED

Jobs and environmental benefits not included in $100b calculation
*Jobs created is a total number, not annual new jobs

Data Analysis: 13M tons of potential (20%)

Prevention
Stopping waste from occurring in the first place

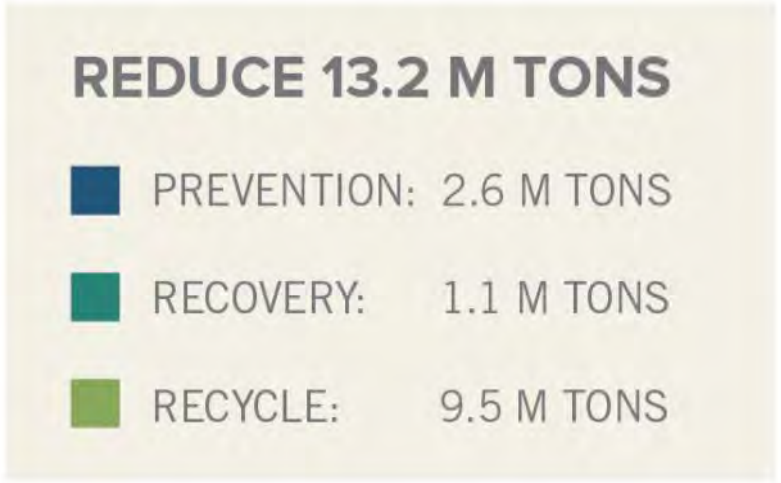
12 solutions
Most Cost Effective

Recovery
Redistributing food to people

7 solutions
Best at Alleviating Hunger

Recycling
Repurposing waste as energy and agricultural products

8 solutions
Greatest Diversion Potential



ReFED

27 Solutions Evaluated

Prevention Solutions	
Packaging, Product & Portions	Standardized Date Labeling
	Packaging Adjustments
	Spoilage Prevention Packaging
	Produce Specifications (Imperfect Produce)
	Smaller Plates
	Trayless Dining
Operational & Supply Chain Efficiency	Waste Tracking & Analytics
	Cold Chain Management
	Improved Inventory Management
	Secondary Resellers
	Manufacturing Line Optimization
Consumer Education	Consumer Education Campaigns

Recovery Solutions	
Donation Infrastructure	Donation Matching Software
	Donation Storage & Handling
	Donation Transportation
	Value-Added Processing
Donation Policy	Donation Liability Education
	Standardized Donation Regulation
	Donation Tax Incentives

Recycling Solutions	
Energy & Digestate	Centralized Anaerobic Digestion (AD)
	Water Resource Recovery Facility (WRRF) with AD
On-Site Business Processing Solutions	In-Vessel Composting
	Commercial Greywater
Agricultural Products	Community Composting
	Centralized Composting
	Animal Feel
	Home Composting

Criteria for Selection

Available Data

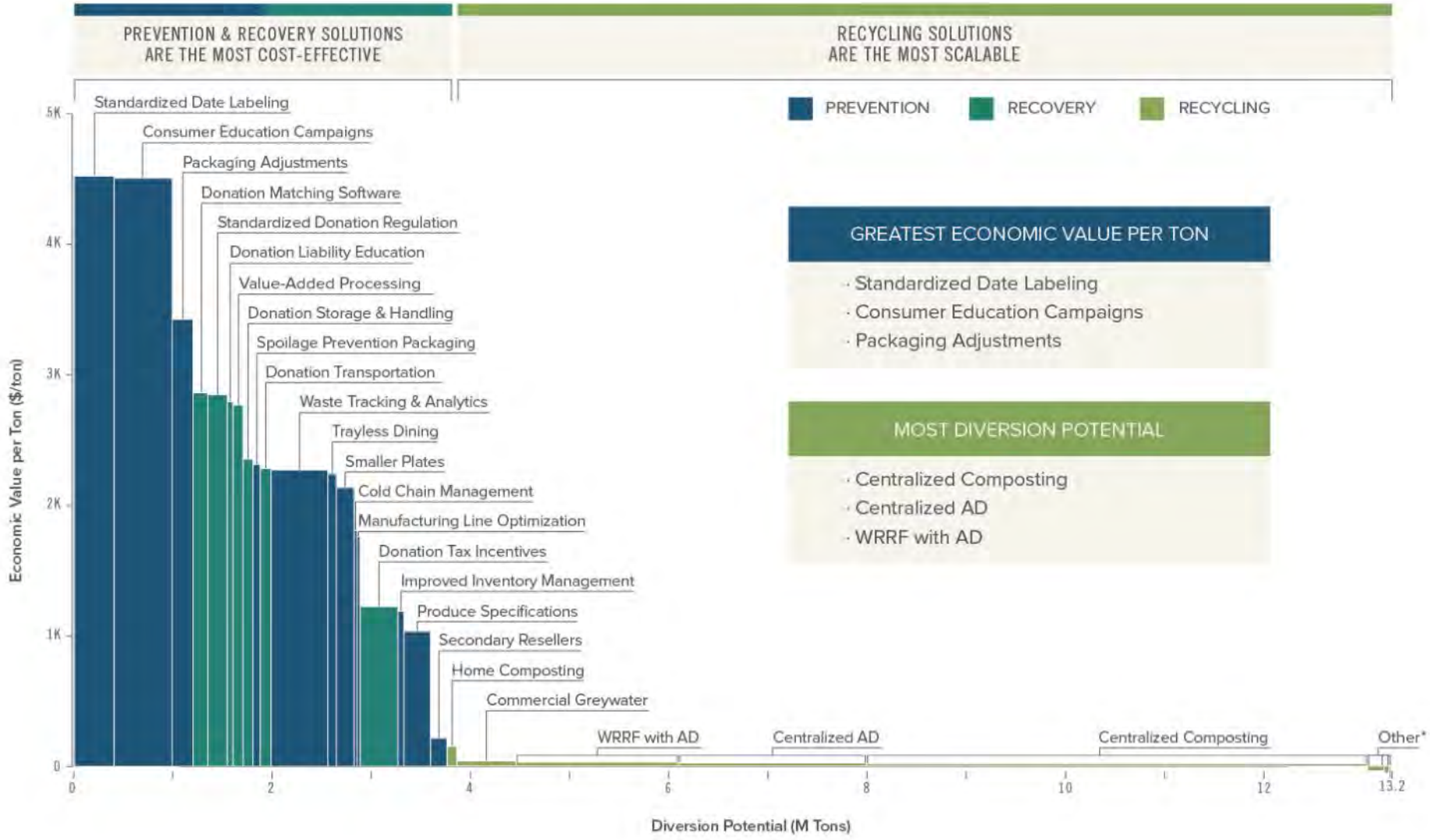
Cost effective

Feasible

Scalable

ReFED

MARGINAL FOOD WASTE ABATEMENT COST CURVE



ReFED

* Other: *Community Composting, Animal Feed, In-Vessel Composting*

Prevention

Generally low levels of investment and food valued at high wholesale/retail prices

Largest net environmental benefit by avoiding wasted resources in agriculture – twice the GHG impact per ton reduced of recycling

<u>Top 3 Most Scalable Solutions:</u>

- *Standardized Date Labeling*
- *Consumer Education Campaigns*
- *Waste Tracking & Analytics*

ReFED

Recovery

3 pillars to scale:

1) Enabling policy that financially incentivizes donations from businesses with standardized regulations

2) Education for businesses on donor liability protections and safe food handling practices

3) Logistics and infrastructure to transport, process, and distribute excess food.

<u>Top 3 Most Scalable Solutions:</u>

- *Donation Tax Incentives*
- *Standardized Donation Regulation*
- *Donation Matching Software*

ReFED

Recycling

Nearly three-quarters of total *Roadmap* diversion potential

3 main recycled products: compost, biogas, animal feed

Northeast, Northwest, and Midwest show the highest economic value per ton from recycling due to high disposal fees and high compost & energy prices

Top levers to scale recycling: (1) increase in landfill disposal costs, (2) efficiencies in hauling and collection through siting near urban centers, and (3) denser routes

<u>Top 3 Most Scalable Solutions:</u>

- *Centralized Composting (highly variable scale)*
- *Centralized Anaerobic Digestion (AD)*
- *Water Resource Recovery Facility with AD*

Levers to Drive Action Across all Stakeholders

Four crosscutting actions needed to quickly cut 20% of waste and put the U.S. on track to achieve a broader 50% food waste reduction goal by 2030.

POLICY
Commonsense tweaks leading to standardized national policy

FINANCING
New catalytic capital and quantified non-financial impacts

INNOVATION
5 focus areas and innovation incubator networks

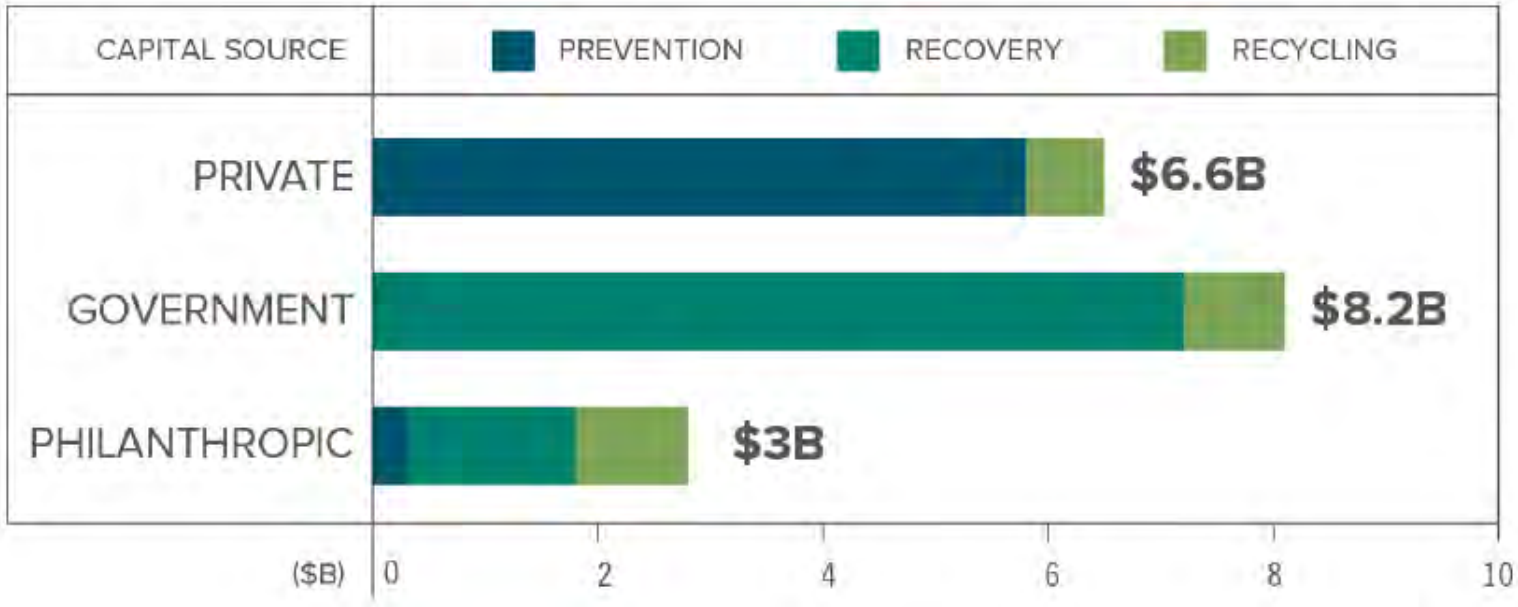
EDUCATION
National Consumer and Employee campaigns

ReFED

Financing

The Roadmap will require an $18 billion investment, less than a tenth of a penny of investment per pound of food waste reduced, which will yield an expected $100 billion in societal Economic Value over a decade.

FINANCING NEEDS FOR 20% REDUCTION IN FOOD WASTE OVER A DECADE



Big Opportunity: *Form impact investment funds focused on food waste solutions, while better incorporating social and environmental benefits into government budgeting.*

Policy

Near Term Priorities

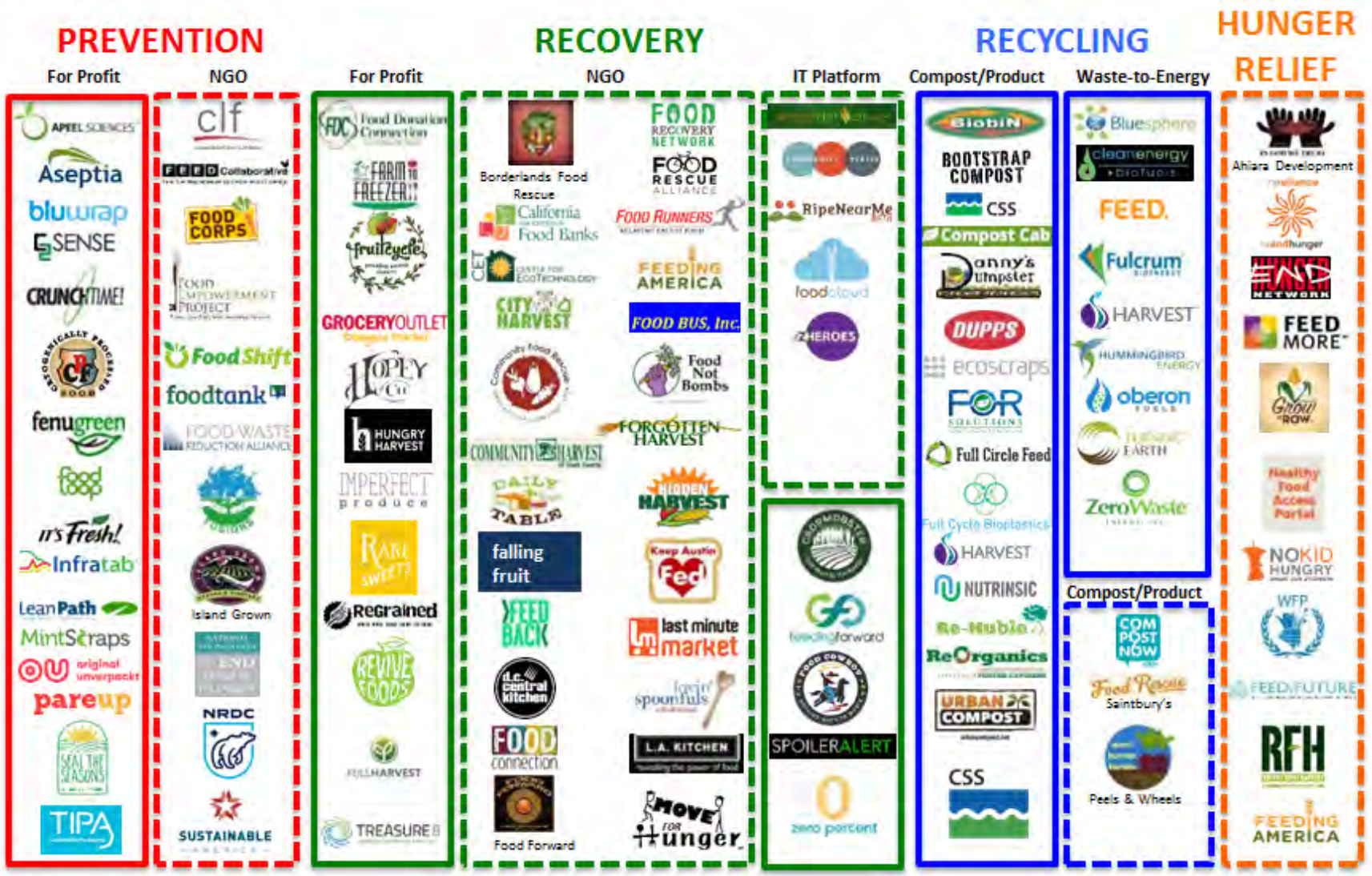
- Donation Tax Incentives — Maintain and build upon the recent expansion of permanent federal food donation tax incentives for all farms and food businesses.

- Food Donation Regulation — Create a common standard of safe handling practice regulations among state and local health departments.

- Recycling Best Practices — Spread best practices to encourage recycling, such as streamlined permitting of processing facilities, improved enforcement of waste bans, and expanded incentives to encourage diversion of food waste from landfills.

Big Opportunity: *Pass comprehensive federal food waste legislation that ties together nearly a dozen individual policies and signals a market shift to food businesses.*

Innovation



Big Opportunity: *Incubator network focused on 5 Big Ideas: Packaging & Labeling, IT-enabled Transportation & Storage, Logistics Software, Valued-add Compost Products, Distributed Recycling*

Education

Consumer Education

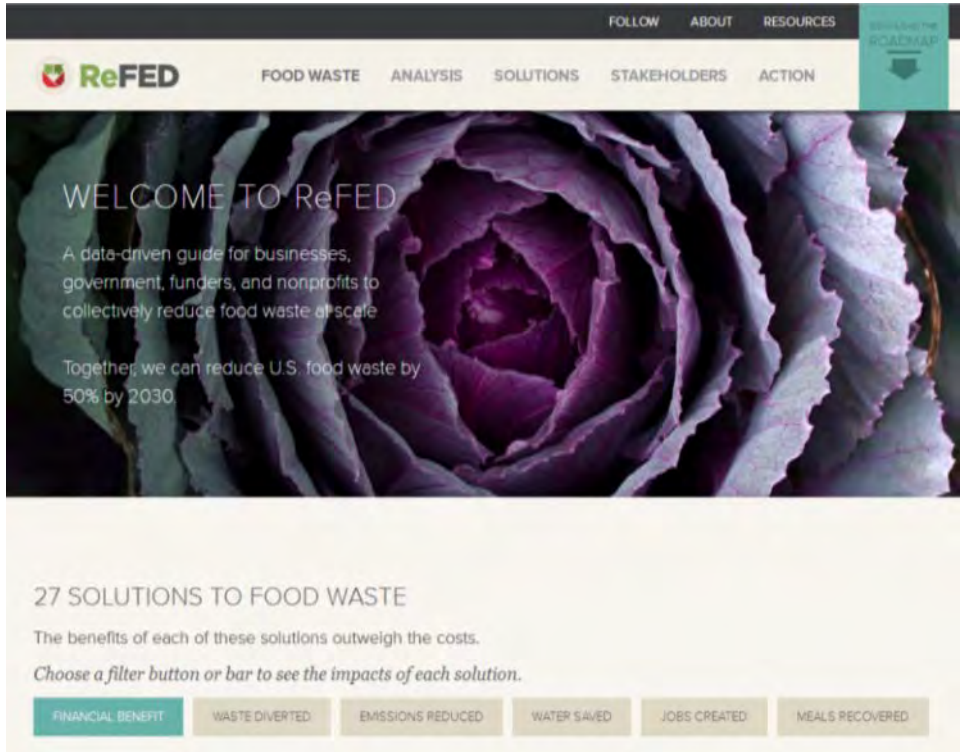
- One of the most cost effective of the 27 solutions
- Spurs consumer demand for smarter retail offerings, such as Standardized Date Labeling, Spoilage Prevention Packaging, Imperfect Produce, and Trayless Dining.
- In late April, NRDC and the Ad Council will launch the first widespread public service campaign promoting food waste awareness.

Employee Education

- Half of *Roadmap* solutions require employee involvement in day-to-day execution
- Training can avoid the removal of product from shelves when it is still safe to eat, identify food that can be donated, and properly source-separate scraps to remove contaminants for recycling.
- Quickest path to widespread employee training would be to link a new Food Waste Certification to existing Food Safety Certification programs

Big Opportunity: *Expand national social-based marketing campaign to achieve widespread consumer awareness and behavior change in coordination with a national food waste employee certification effort.*

Need More Info? Visit refed.com



Interactive Cost Curve ranks solutions by economic value, scalability, and environmental/social benefits

Download and share the Roadmap full report (96pg), Key insights (5pg), and Technical Appendix

Additional Detail on the 27 solutions and priorities for each stakeholder

Future Research Priorities

Contact Us to join a multi-stakeholder working group to take action

Contact: info@refed.com

ReFED

Florida Department of Environmental Protection

Waste Reduction/Recycling

Adam Saslow

Next steps…..





Questions

- Please use the “Questions” tab in in the attendee panel to submit a question
- Use the “Raise Hand” option to be identified for follow up

FDEP Waste Reduction Staff

- ***Karen Moore***
  - Environmental Administrator
  - Karen.S.Moore@dep.state.fl.us or 850-245-8864

- ***Shannan Reynolds***
  - Recycling: Solid Waste Management reports, Recovered Materials Dealer Certification and Reporting, Construction & Demolition Reporting Program, Public Sector Reporting Program
  - Shannan.Reynolds@dep.state.fl.us or 850-245-8716

- ***Laurie Tenace***
  - Special Wastes Management: electronics, mercury, batteries, household hazardous waste, pesticides, pharmaceuticals
  - Laurie.Tenace@dep.state.fl.us or 850-245-8759

- ***Henry Garrigo***
  - Grants Management
  - Recycling Market Development
  - Henry.Garrigo@dep.state.fl.us or 850-245-8822

Florida Department of Environmental Protection

Waste Reduction/Recycling

Organics in Florida: Part II

“Strategies and Directions"

May 25, 2016