

Farm (and Sea) to Schools “AND BACK”

What Happens After Lunch?



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Farm & Sea to School Conference, November 4, 2016

Overview: Coming Full Circle

- ◉ Welcome and Introductions
- ◉ Why?
- ◉ Where and What?
- ◉ How?

Why Focus on Waste Reduction, Recycling and Composting?

“TELL ME AND I FORGET,
TEACH ME AND I MAY REMEMBER,
INVOLVE ME AND I LEARN.”

~ BENJAMIN FRANKLIN

Educational value

- Teaching by doing
- Project Based learning
- New state science standards

Another Reason Why

Following the rules!

- State Waste Bans DO apply to schools and municipal buildings, too!
- www.mass.gov/eea/docs/dep/recycle/solid/wbanmuni.pdf



Good Citizenship

- Schools need to set a good example.



And Another

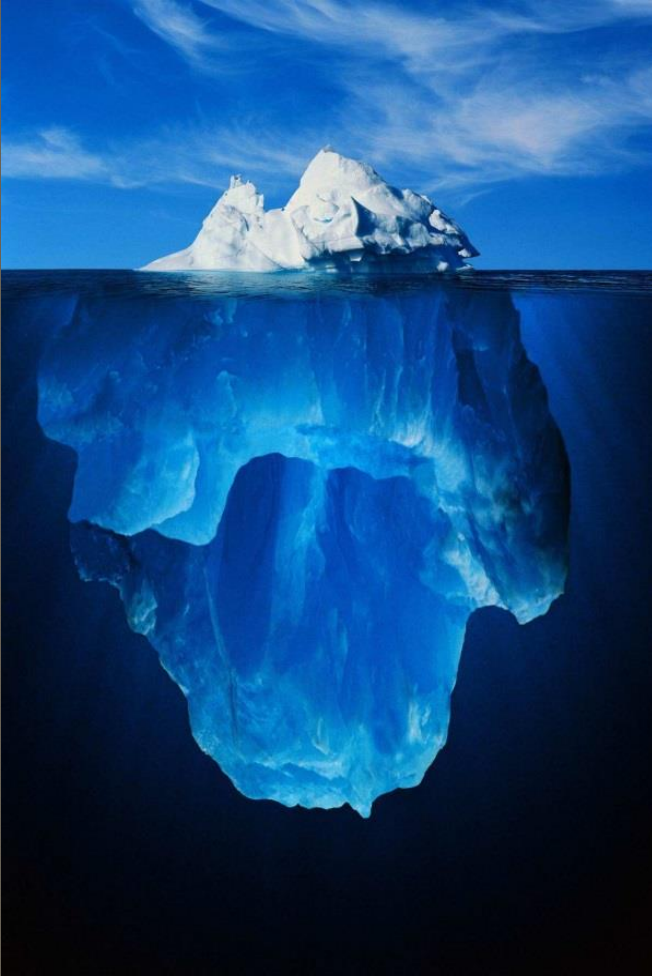
Save Money

- Lower trash tonnage = less frequent p/u = lower cost
- Done well, no more time and maybe less!



Even more savings if compost onsite: reduce disposal, produce compost for gardens.

Don't Forget Environmental Benefits

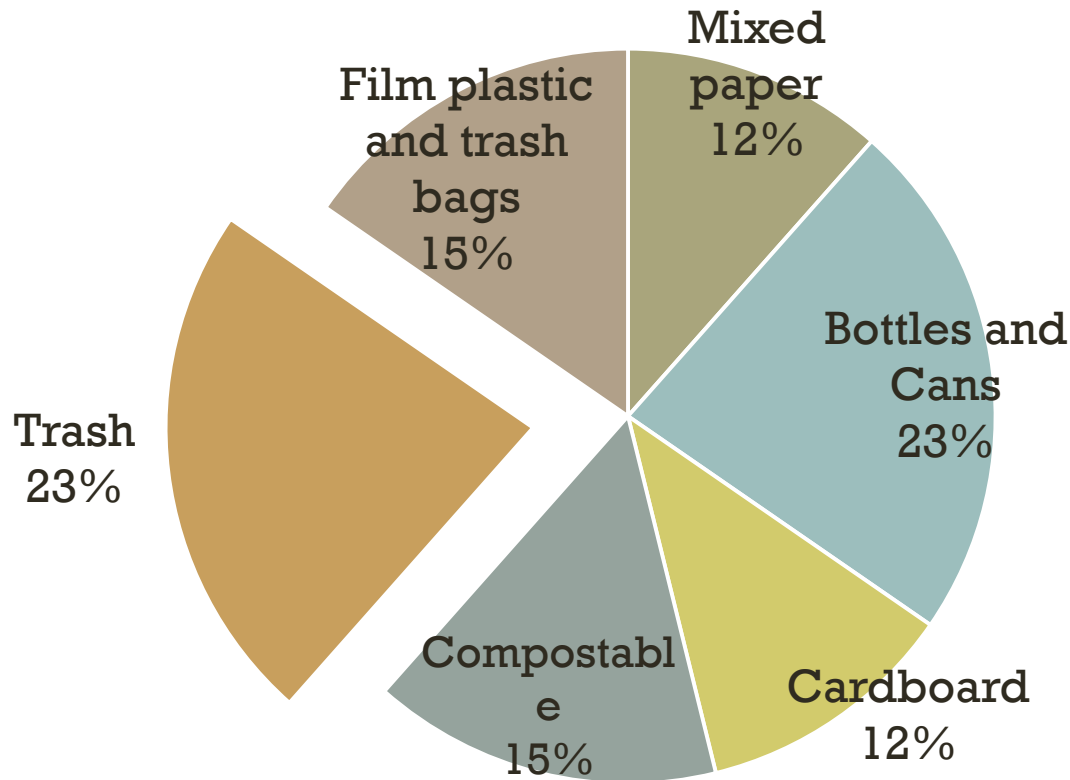


Upstream: Reduces resources used in mining, manufacturing and transportation

Downstream: Minimizes need for waste disposal, landfills

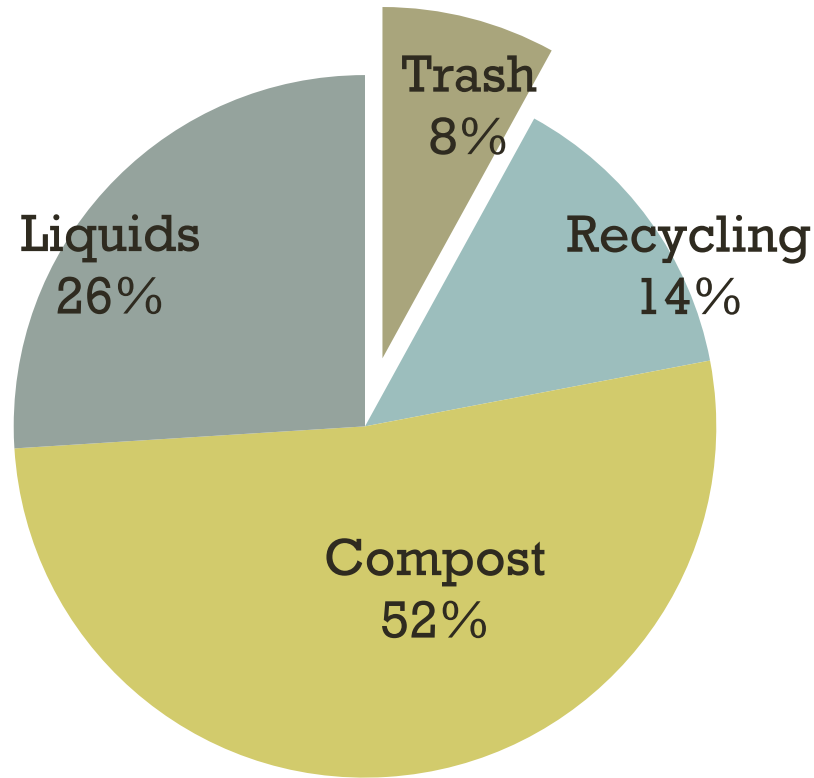
AHS Whole School Waste Audit: Only 23% was actually trash!

Amount by Volume



What Is in Beverly's Cafeteria Waste?

Consolidated Waste Audit Results

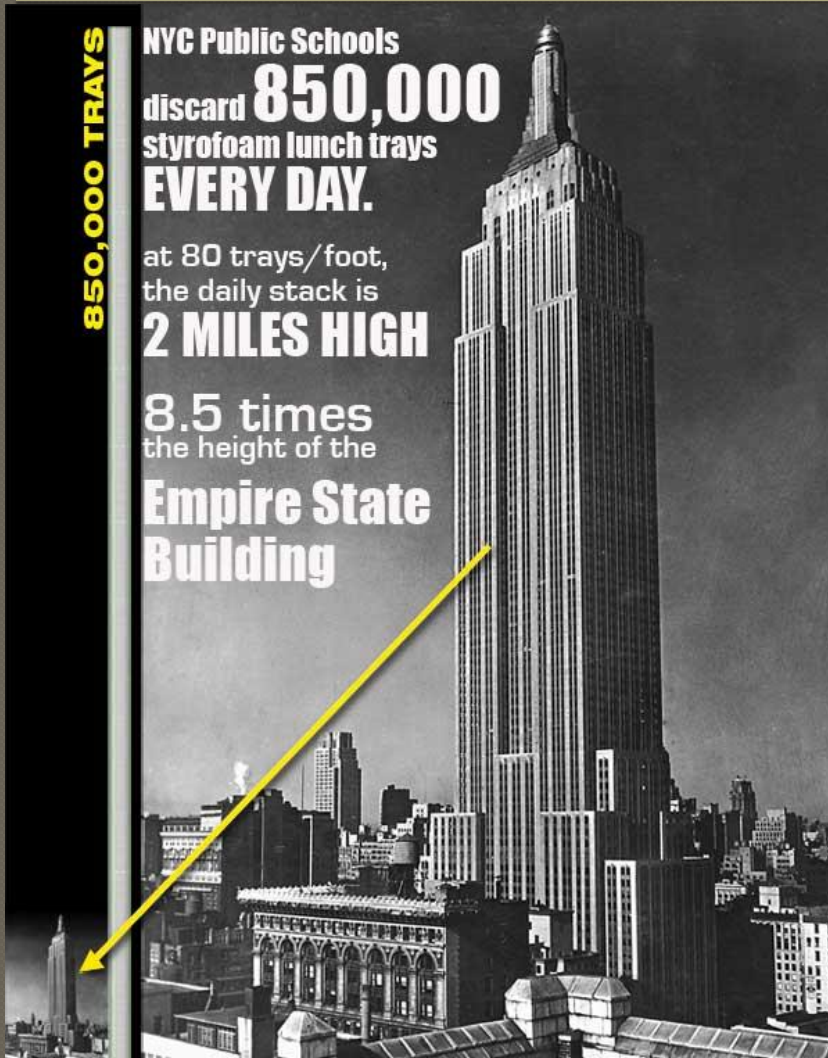




Are Foam Trays Healthy?

- ◉ Polystyrene foam: Made with **Styrene**.
- ◉ Styrene **leaches into food** and beverages.
- ◉ EPA studies in the 1980s showed that 100% of **Americans have Styrene in their bodies**.
- ◉ Most MA trash is incinerated. EPA reports stack **emissions from waste incineration contain Styrene**.
- ◉ Plastic foam litter is lightweight, easily airborne, & a major source of ocean pollution.
- ◉ Buying trays requires storage space. Disposing of foam trays creates lots of waste and cost!

NYC Public Schools Take on Foam Trays



Urban School Food Alliance Eliminates Foam Trays

- Six of the largest U.S. school districts pooled their collective purchasing power to eliminate the polystyrene (foam) tray. **Cost = \$0.049 each**
- The Urban School Food Alliance includes the school systems of NYC, LA, Chicago, Miami-Dade, Dallas and Orlando, commissioned a school lunch dish **made from recycled newsprint that can be turned into compost after use.**
- Alliance **eliminated 2.5 million foam trays per day**, serving students in > 4,000 schools.



Local Case Study in Waste Reduction: Hingham High School

- US Dept. of Ed Green Ribbon School
- National Teach-In
- Enviro Science Fair
- Green Team
- Art, films, guest speakers
- Teams & Clubs compete



Hingham High School: Food Scraps to Garden



Hingham High School: Program Impacts & Costs

- Compostable FSW:
 - Oval platters: Cost \$0.126/item
 - Flat trays: Cost \$0.1188/item
 - Compartmentalized trays: Cost \$.08925/item
- Trash reduction: Eliminated 6 cubic yd. dumpster collected 2x/week, save \$2,000/yr
- Trays to town composting site



Goals for Your Program

- Easier than trash.
- Sustainable – you don't have to do this alone; establish a “Green Team”
(www.thegreenteam.org)
- Teach!



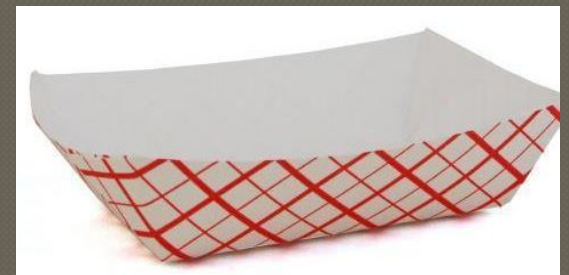
Where? Kitchen Food Waste

◉ Prep waste

- Slim jims fit under the counter, lined with clear plastic bags or biodegradable bags
- Emptied by custodians into wheeled carts

◉ Leftovers

- Requires planning well
- Avoid wrapping or covering in non-compostable materials (foil, plastic wrap).
- Use paper boats, paper trays or PLA containers.



Where? Cafeteria/Dining Room

Start where you can and grow!



Then, add compostable or reusable trays, food rescue, share tables, trayless meals, and more....

What? #1: Drain Liquids

- Reduce costs by separating liquids and pouring them down the drain.
- Use funnels or screens on slim jims or open buckets.



What? #2: Recycle Containers

- Cartons are now being recycled in many places as well as bottles and cans.
- Check with the Carton Council for grants!
- Recycle cans from the kitchen.



What? #3: Compost Onsite

- Onsite composting – limited range of food wastes (no meat or dairy, salad bar only?) but requires management.
- Students learn about compost, soil, microbes.
- Compost can be used on gardens or grounds



Or, #4 Compost Offsite

- Pro: takes all food types, all kitchen leftovers, paper towel waste
- Con: possible cost but also possible savings



Garden & Chickens in Bedford

Teach Life Science!!



Gr 3:

- Plant and animal life cycles
- Adaptations
- Survival

Gr 4:

- Growth
- Reproduction



Gr 5:

- Photosynthesis
- Food chains
- Composting

What #5 - Other Options

- Trayless Tuesdays
- “Tip, Tap, and Stack” trays to save space
- Add a “Share Table”
- Food Rescue
- Can recycling
- Cardboard recycling
- Locker Clean-outs
- Special Collections
- Event Recycling
- Sports Field Recycling



Raytheon's Zero Waste Cafeteria



U-Mass Moves Towards Zero Waste

Both with “to go” items,



And “to stay” items!



What are Key Ingredients for Success?

- Parallel access = one place
- GREAT signs
 - Color-coded
 - Eye-level
 - Understandable from a distance
 - Restrictive openings
- Flexibility and Mobility
 - To allow for cleaning, changing uses of cafeteria, growth and changes in program
- And, ...



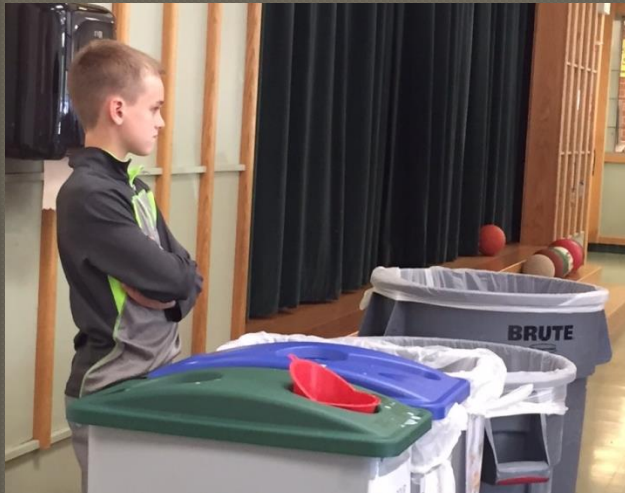
Continual Education



Custodian's View



- Liquids pour-off makes cafeteria trash easier, cleaner
- Food waste separation more work but students can help.
- 96-gallon wheeled carts best for custodians collecting recycling from classrooms.



Immediate and Future Savings Potential

- Set-up = \$1000/school
- Collection Cost/Yr = \$3600

Assumptions:

\$25/pickup, 2x/wk x 36wks
\$4/barrel rent/mo x 5 barrels x 10 mos
\$4.50/tip x 5 barrels x 2/wk x 36 wks
Trash cost = \$65/ton
64-gal barrel of FW w trays weighs 150 lbs

- Savings
 - Liquids + Recycling ~ = FW in weight
 - Savings for FW = \$1750+
 - Savings for rest ~ = \$1750
- TOTAL ~ \$3500/yr
- Reduced frequency of trash collection = future savings

Justifying Washable Trays

- Many new schools have dish machines now = BEST way to reduce waste volume.
- Framingham – retrofit three schools, **NO** added labor cost, reduced trash 50% and disposal cost.
- Savings on trays: ~ \$2000/year for 400 students
 - 400 foam trays/day for 180 days at \$0.03 each = \$2160 /yr
 - Vs. 400 reusable trays at \$4.00/tray used 15 yrs= \$106/yr



How to Initiate?

◎ Start with a Team

- Teachers, Custodians, Principals, Parents, Students

◎ Launch with a Laugh

- All school assembly with a game/skit or other
- www.youtube.com/watch?v=hiNKBaaL4DU

◎ Reinforce

- Invite parents to help oversee
- Invite students to monitor (give them ability to get lunch first to make sure they are done eating first)

3 "sizes" of composting: what size is right for your school?

Small: indoor worm bin

(vermicomposting)

- ✓ Classroom: snacks
- ✓ Red wiggler worms
- ✓ Raw vegs, fruits *only*
- ✓ **No meat, bones, dairy, oils, bread**



Medium: Backyard or on-site composting

- ✓ Classroom: snacks
- ✓ Some cafeterias
- ✓ Yard waste, leaves
- ✓ Veggies, fruit, bread
- ✓ **No meat, bones, dairy, oils**

Earth Machine



New Age Composter



Medium: Backyard or on-site composting

- Larger system: 3-bay compost system
- No meat, bones, dairy, oily foods, peanut butter
- Kids empty after lunch
- Cover w/ leaves
- Stir/ turn often
- DEP: School Compost Notification Form

- Hawlemont ES > Agricultural curriculum
- Adds compost to gardens



Large: Commercial Composting at compost farm accepts:

ALL food: including meat, bones, cheese...

Paper: paper lunch trays, boats, paper napkins + towels, cartons, (cardboard, shredded paper), BPI-certified compostable plastics

Up to 89% of a school lunch is compostable! 18 Franklin County schools compost!



**Windrows at
Bear Path Farm,
Whately, MA**

Enacted Oct. 1, 2014: MassDEP waste ban on food waste - more than 1 ton/week from commercial/institutional. For help: www.recyclingworksma.com

Off-Site School Organics Program: Turners Falls HS/MS



- ❖ 32 gal. "Comp-lete" compostable bag by Fortune Plastics
- ❖ 32 gal Brute trash can on a rolling dolly



- ❖ 2 cu yd compost dumpster: serviced weekly by Triple T Trucking (only \$80/month!)
- ❖ Composted @ Martin's Farm

Pioneer Regional School Program is 15 years old! 70% waste diversion rate.



17 waste stations around school

Greenfield Elementary Schools: 75% - 86% of kitchen and cafeteria waste is *compost!*



**MassDEP SMRP
Grant: Recycling
Assistance for
Schools**

**101 lbs. trash
Caf. and Kitchen**

**10 gallons recycling
Cafeteria**

**273 lbs. compost
Caf. And Kitchen**

Four Corners Elementary (K-4): 75% compost!

33.5 lbs. trash

10 gallons recycling

215.5 lbs. compost

Math & Science Academy (4-7): 86% compost!

Greening Greenfield High School

May 2016: Started Compost Program, Cafeteria Recycling, and switched to Reusable trays and utensils



- One day flip: Presentation in morning; started at lunch
- 8 trash cans all over cafeteria to ONE, w/sorting station
- Reduced trash from 15 bags a day to 3: > 60 bags a week!
- 1 week: 550# compost, 180# trash: 75% waste diversion



START

Sort your lunch waste carefully:
Get plastic trash off your tray first!

Celebrating 3 years of Mohawk HS/MS compost program! March 2012 – 2015

Congratulations!



YOU have composted

- **240 cubic yards,**
- **or over 60 tons,**
- **or 8 huge dumpsters**
of food and paper!

- Saved 55 metric tons of greenhouse gases*
- Saved 3,200+ bags of trash
- Saved space in landfills
- Created soil from waste

*metric tons of carbon dioxide equivalent (MTCO₂E)

Classroom composting



Paper
Recycling

Trash

Bottles
Cans

Compost
Paper
Towels

...and back again:

Farmers and gardeners need compost!

School gardens get Martin's Farm Compost delivered.

Lyonsville Farm in Colrain MA; Facebook Post:

"Took advantage of the balmy weather to spread compost in all the hoopouses.

Lyonsville Farm Fact- 100+ yards of Martin's Farm compost is spread every year!"

martinsfarmcompost.com



Franklin County
Solid Waste Management District

Costs and Potential Savings

- **Off-site program: materials diverted from trash dumpster:**
 - Reduce trash dumpster size or hauling frequency =
 - Reduced trash bill: Savings applied to compost pickup (\$80/mo)
 - Still have to pay (more) for compostable bags?
 - Educational, social, environmental value: priceless
- **Off-site set-up costs:**
 - Re-label existing 32-gal. trash cans as compost
 - Laminated signage, custom stickers (www.makestickers.com)
 - MassDEP School Recycling Assistance Grant to Greenfield Public Schools
 - Funded \$6,000 + in equipment, educational signage, etc.
 - Funded \$23,000 + in staff/implementation, over 3 years
- **On-site program: smaller program = less waste reduction?**
 - Possible trash reduction, cost reduction
 - Get free compost bin(s) via MassDEP Green Team

Help is Available

- MassDEP Green Team
www.TheGreenTeam.org
- Recycling Works MA
www.RecyclingWorksMA.com
- MassDEP Sustainable Materials Recovery Program Grants
www.mass.gov/eea/agencies/massdep/recycle/grants/smrp-grants.html

Helpers Are Available (Municipal Assistance Coordinators)

- **Western: Arlene Miller**
 - Arlenem773@aol.com
- **Franklin Co: Amy Donovan**
 - Amy@franklincountywastedistrict.org
- **Central: Irene Congdon**
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- **MetroWest: Carolyn Dann**
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- **Cape & Is: Dave Quinn**
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Reflecting Our Values!

- The schools of the future should generate more recycling and compostable material than trash.
- Maybe NO trash at all!
- Can you help us get there?
- **THANK YOU!**

