



Food For Soil. Food For People. Food for Industry.



be a farmer

you don't need a tractor



Objectives

- Why is compost collection important– macro view?
- Why compost collection is important for schools?
- How does it work?
- Success stories!



The Problem

Fossil-Based Agriculture

- The inability of industrial agriculture to reclaim, recycle and reuse nutrients and efficiently use energy limits modern food production to the reserves that can be economically mined and purchased at a reasonable price.
- Soil degradation has caused decreasing crop yields, forcing farmers to apply more mined chemicals each year.

Growing a food crop for one season removes 50% of the soil nutrients.

Erosion: 6 tons lost soil per acre, per year

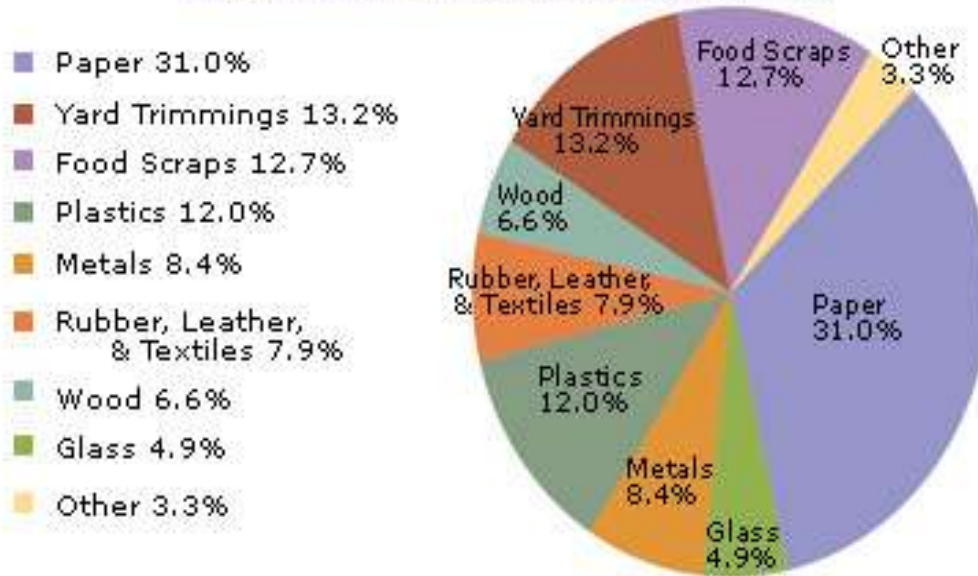
33% of the world's crop land has been abandoned in the last 30 years due to soil wear-out or erosion

- Modern farming in the US consumes 10X more energy than it provides to society in food energy.
- At current rates of consumption, world reserves for certain fossil fuels critical to agriculture will last about 40 years.



Why Focus on Organics–Macro?

Total MSW Generation (by Material), 2008
250 Million Tons (Before Recycling)



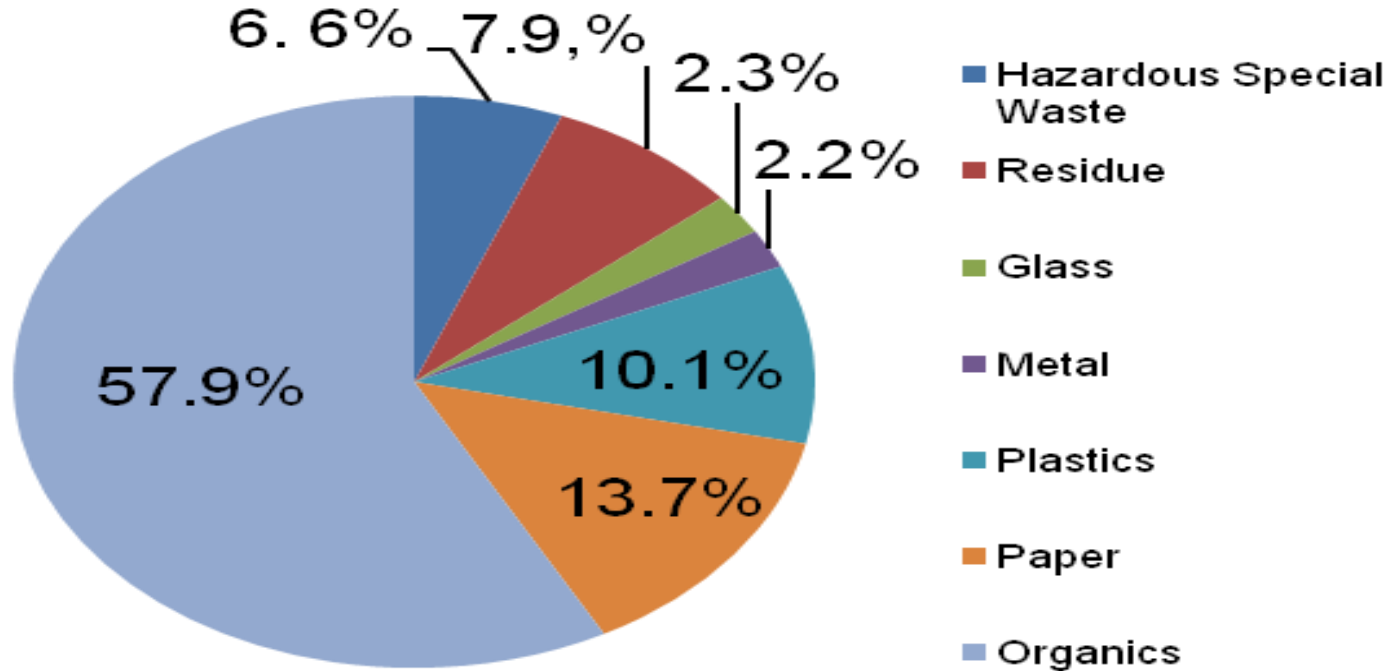
In 2008, 249.6 million tons of municipal solid waste or MSW (more commonly known as trash or garbage) were generated in the United States. Organic materials—comprised of [yard trimmings](#), [food scraps](#), [wood waste](#), and [paper and paperboard products](#)—are the largest component of our trash and make up more than two-thirds of the [solid waste stream](#).

The amount of food waste generated in the US is huge. It is the third largest waste stream after paper and yard waste. In 2008, about 12.7 percent of the total municipal solid waste (MSW) generated in America was food scraps. Less than three percent of that **32 million tons** was recovered and recycled. The rest – **31 million tons** – was thrown away into landfills or incinerators.

Why Focus on Organics— Denver?



Denver Waste Composition





It's Not Waste





Nature as Our Model

- In a healthy ecosystem nothing is wasted and there is efficiency in energy transfer and nutrient cycling.
- In a healthy ecosystem:



- Waste Farmers is tapping surplus human, animal and industrial waste streams to recover and recycle nutrients, increase energy efficiencies, and create more cost-effective alternatives to fossil fuel chemicals.
- **FOOD for SOIL, FOOD for PEOPLE, and FOOD for INDUSTRY**
The closed loop system feeds itself.



Creating a Win-Win

Regional Industrial Ecosystems Create:

- Efficient cycling of energy and nutrients
- Reduced waste management costs
- Reduced emission control costs
- Reduced raw material and energy costs
- Reduced transportation costs
- Job Creation:
 - For every one job at a landfill, there are ten jobs in recycling processing and 25 jobs in recycling based manufacturers (Eco-Cycle, “Top Ten Reasons to Recycle”).
- Regional Energy Security
- Regional Food Security



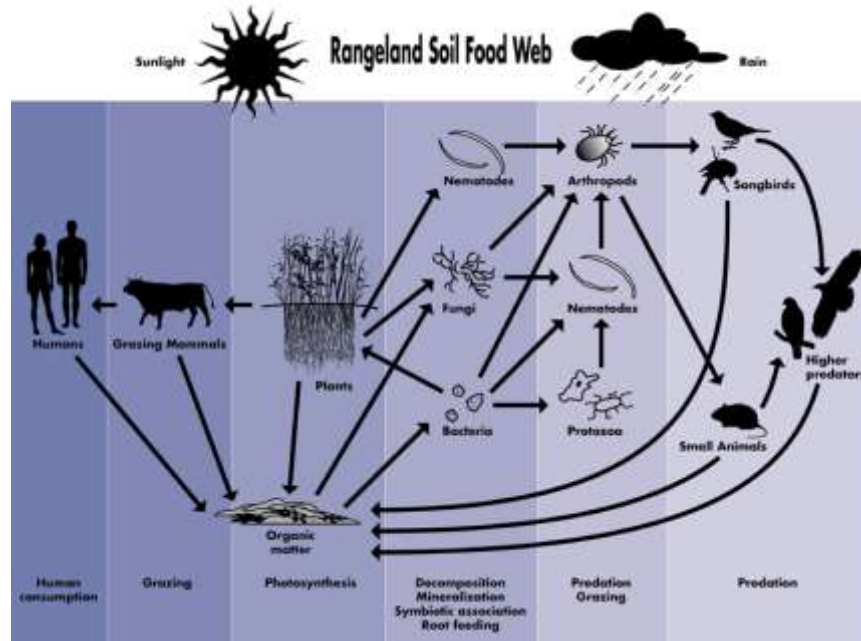
Reconnecting with Soil



- Healthy soil is the basis for a healthy ecosystem.
- When the waste of one system becomes the food for another, we all share a role in the cultivation of a restorative economy. In this light, the inhabitants of the city and those of the so-called “rural environment”, all share the common occupation of “farmer”.



Bringing the Soil to Life



www.sciotoswcd.org



www.field-studies-council.org



montessoritraining.blogspot.com



Composting in Our Schools

Provides for an opportunity to:

- 1.) Educate on the poorly understood world of the soil system and its importance
- 2.) Educate about our connection to a broader ecosystem
- 3.) Move towards a more sustainable economy



The Opportunities

- Cafeteria Kitchen (Back of House)
- Cafeteria Students (Front of House)
- Classroom snacks
- Grounds and gardens

Acceptable Items: Industrial Compost



What Can I Compost?

FOOD WASTE Food and Bones

• Bones
• Eggs/shells
• Meat
• Milk: Milk Products & Eggs
• Apples

COFFEE & TEA

• Coffee grounds
• Spoons of the coffee
• Tea bags

PAPER PRODUCTS

• Paper Towels
• Napkins
• Paper Bags
• Milk Paper
• Facial Tissues

CARDBOARD including boxes

• Milk Cartons
• Pizza Boxes
• Dry Food Boxes
• Paper Plates

PLANTS

• Flowers
• Fruit: Apples
• All Fresh Produce

COMPOSTABLES

• Compostable Paper Plates
• Compostable Paper Cups
• Compostable Paper Napkins
• Compostable Paper Bowls

What is NOT Compostable? ☞ = Not compostable

<ul style="list-style-type: none"> • Liquids: soups, broths, etc. • Grease / Oil: these should be in a deep metal or thick enough to contain any oil - all cooking oils are OK • Plastic: Glass or Cardboard Paper Products <small>Plastic can contain sharp bits or a coating that is not biodegradable</small> 	<ul style="list-style-type: none"> • Metal • Styrofoam • Plastics
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DO YOU WANT TO BE A FARMER?

Our sites are looking for the good and a little bad because a Farmer, please do it all in our 2000 sq ft bins. Call us at 408-247-2247 or by email at info@wastefarmers.com



On-Site vs. Collection Program

- **On-Site Composting:**

- **Benefits:**

- Save on Hauling Costs
- Bring students closer to the process

- **Challenges:**

- High Capital Expenditures to handle full volume
- Facility's Department Resource Allocation

- **Collection:**

- **Benefits:**

- Ability to divert larger and more diverse volumes of organic material
- Lower burden on facility department

- **Challenges:**

- Increased cost to process organics vs. disposal in Colorado
- Space requirements for additional containers



www.compostingtechnology.com





Engagement of Stakeholders

Who are the Stakeholders?

- Students
- Faculty
- Parents
- Cafeteria and Janitorial Staff



Education

Program Implementation and Continuing Education

- Assemblies
- Classroom
- Lunch Helpers
- Signage



Helpful Links for Teachers

- [Soil Science Education – NASA](#) A very comprehensive soil education site with many quality activities and explanations. Also has a link to learning standards related to soil for each state.
- [The Soil Chain – Utah AITC Dirt: Secrets in the Soil](#) Lesson about the importance of soil as a natural resource.
- [Down and Dirty – Discovery School The Dirt on Soil](#) Soil definitions, terms, and concepts presented well for upper elementary and middle school students.
- [Songs about Soil – USDA-NRCS K-12](#) Do you like to sing? Well, some soil scientists (young and old) do. Read the lyrics and sing them aloud.



Measuring Performance

Why are Metrics important?

- Transparency
- Goal Settings
- Measuring Achievement
- Encouraging Continued Participation
- Calculating Environmental Impact



Challenges

- Education
- “Buy In”
- Contamination
- Misconceptions about compost
- Space restrictions



Schools Currently Composting





Case Study: Colorado Academy

- Initially tried to compost on-site:
 - Odors
 - Lack of Capacity
 - Critters
- Partnered with Waste Farmers for Compost Collection



CA Student Population of 906—ages 4 though 18





Solution

- (9) 65-gal totters picked up 1 time per week by Waste Farmers





Starting in the Kitchen Production

- No garbage cans, staff reactions.
- Erasing old habits, training,...
- Some of my staff is now composting at home.
- Paul, Sara, and their Sodexo staff “Rocks”.





Campus Cooperation

- Assembly with Operations Department
- Education
- Daily reinforcement
- Signage





Going from 600# of landfill waste
a day to “Zero Waste”





Executive Chef Paul's Composting Army Kindergarten to Seniors, Faculty and Staff





Results

- From 600# a day to “Zero waste Events”
- Students taking only what they eat.
- More ownership in production.
- Less waste means my costs go down.
- Training the older generations (staff).
- Training of future generations.



Additional Results

- Cooks see what they are doing, more plugged in and responsible for their waste.
- Cooks compete over who wastes the least.
- Using a compactor less cuts bill for trash pick up in half.
- Methane reduction to landfills.



Executive Chef Paul's Observations

- Students will buy in, adults not so much.
- The training of 906 students yearly who will go out after graduation and demand it of their colleges and employers.





CA Farm Project- Full Circle





Questions?

John-Paul Maxfield

jpmaxfield@wastefarmers.com

Lindsay Smith

lsmith@wastefarmers.com

www.wastefarmers.com