Energy in Ag and Organic Residuals

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Capturing Heat & Gas From Organics

- Digesters- On-farm and Off
- Chip Burners -Producing Energy
- Compost Heat Recovery
- Bio-Diesel

Endless Feedstock
That might have Energy Potential

Wood Chips
Used Animal Bedding
Food Processing Waste
Spoiled Feed
Recalled Organics
Bio-Diesel Residual
Digested Solids

Feedstock Continued

- Food Prep
- Trimmings & Spoilage
- Produce
- Pressings & Pummace
- Butcher Waste
- Whole Animals
- Dairy Processing
- Residuals
- Sludges

How Do We Determine the Best Uses for Residuals?

Use Our "Waste" as the **Resource** It Is!

4.6 million tons of garbage has produced nearly 3 billion kilowatt-hours of

Waste-to-Energy

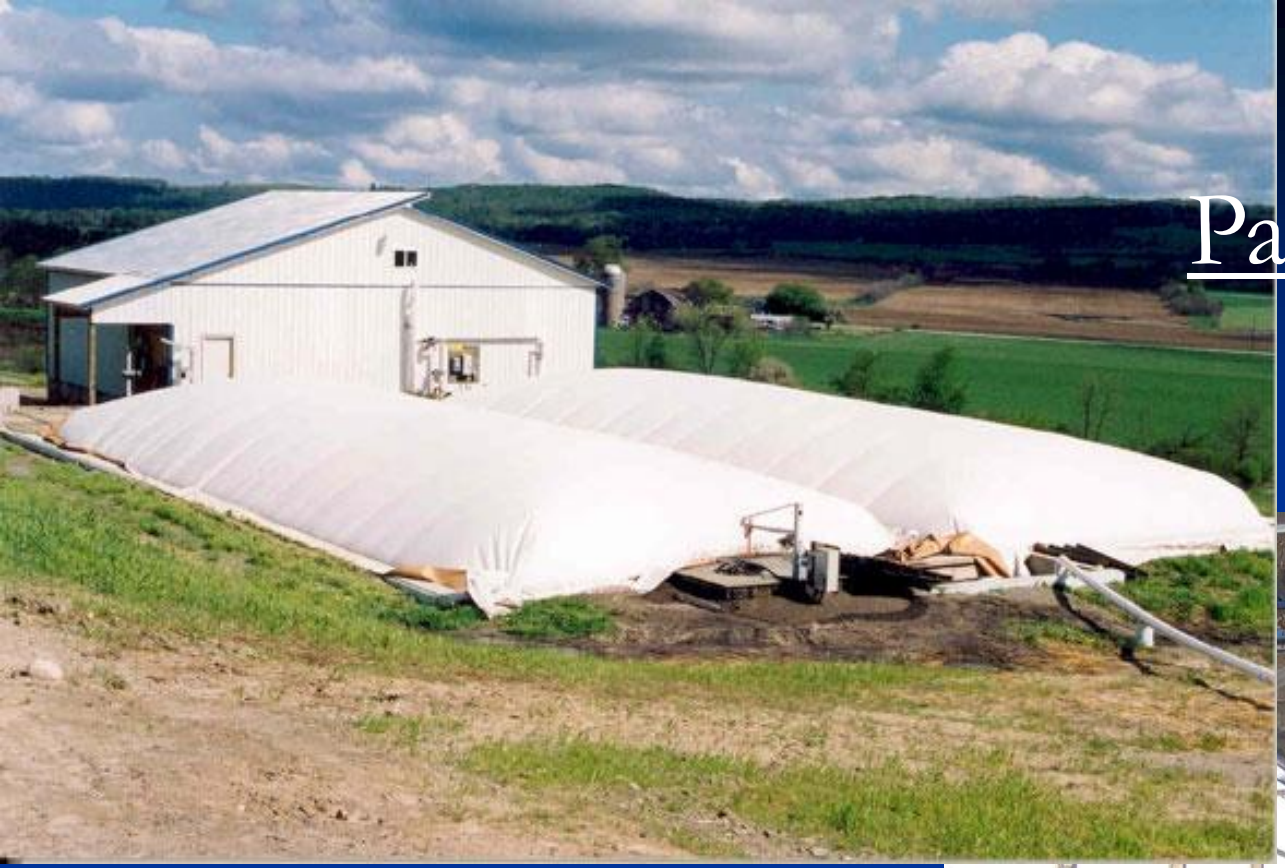
In 1987, *waste-to-energy facilities* accounted for 64 percent of all dioxin .

Landfills

Digester ?
Methane Recovery

Digester, Liquid Storage Tanks

Digester



Parallel Digesters

Solids---
What Now?

- Manure Solids or DMS
- Supply Crop Nutrients
- Further Stabilize

Billions of Tons of Carbon

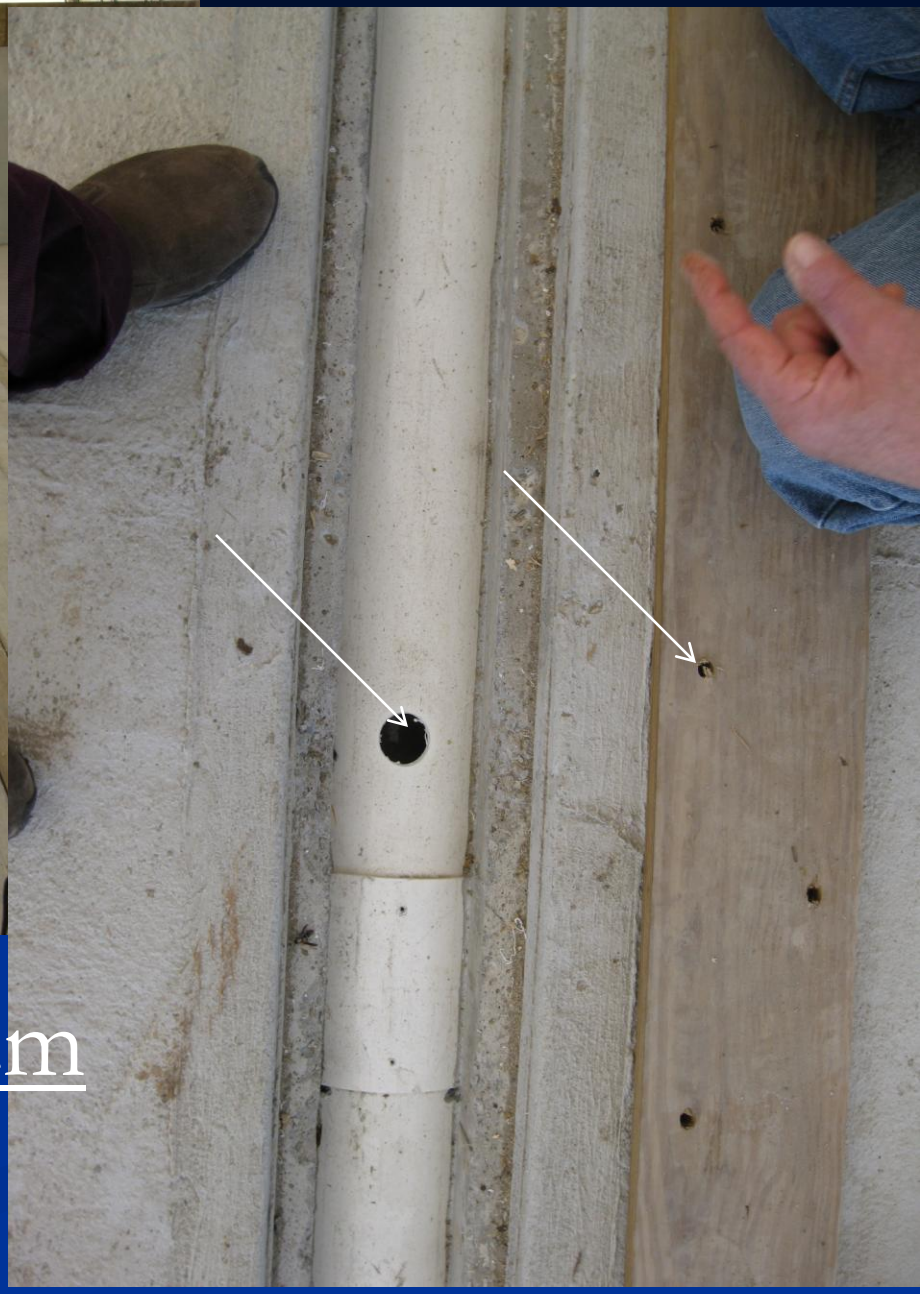
Composting Bedded Pack

Research on Air Flow , Moisture & Gas Generation

Compost Heat

- Temperature 104-170 degrees F

Heat Transfer



Simple Aeration System

Sunset View Acres

Adding Manure Bank


100
120
80
140
60
160
40
180
20
0

Fan- Only Moving Part in System

Isobars- Allow for heat Exchange Filled with Freon

Spreading Compost Product

System Yield

- Compost Product for Sale or Use

- 1,464,000,000 Btu/4 months of winter

- 366,000,000 Btu/2 months of fall/spring

How is Energy Used

- Hot water for Cleaning
- Run Through Pipes to heat Floors
- Converted to Electricity
- Heat Greenhouses

Waste Products

Delmonte
Breyers
Stonyfield
Waste onions
Tabacco Trimmings
Manure
Pummace
Pressings
Sludges
Yard Waste, Woodchips
Cotton, Wool

Waste Exchange

One Entities Trash is Another Entites Resource

Craig's List
Amazon
E-Bay
Market Maker

Circular Pod-Shaped Tea House is Heated by Compost

This heated air is in turn emitted through a central vent that releases into the structure’s interior.

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