A Virtual Tour of Maine Compost Facilities Processing Organics

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Systems Featured

- Turned windrow
  - Rainbow Valley Farms-Sidney
  - Sandy River Recycling-Farmington
- Static aerated pile
  - Tony Ramsey, “Living Acres”-New Sharon
  - Little River Compost-Lisbon Falls
- In-vessel
  - Sugarloaf USA-Carrabassett Valley
  - University of Maine-Orono
  - Casella Organics, “Hawk Ridge”-Unity Plantation

Turned Windrow

- Involves placing compost ingredients into long narrow piles (windrows) and then subsequently turning them at regular timed intervals.
- Typical dimension 3-6 feet high by 10-12 feet long.
- Turning provides aeration, rebuilds porosity, and aids in physical breakdown of ingredients.
- Windrows require temperature monitoring to measure compost activity levels and to help determine turning frequencies.

Rainbow Valley Farms - Sidney

Windrows Are Turned By Either A Tractor

Or Windrow Turner

With A Tractor Turned System, Materials Are Continuously Blended

With A Turner, They Are Layered

Front-End Loader vs. Turner

- Front-end loader works well for small scale operations (<500 cubic yd/yr).
  - >500 cubic yd/yr, loader tends to be time intensive, whereas turner can accomplish task in half the time.
- Turner physically agitates ingredients, loader tends to form balls of compost
- Turner represents additional cost, as it requires a tractor to run. Most facilities have front-end loader.

Sandy River Recycling-Farmington

Food Collection

Transportation and Delivery

Weighing-In

Transferring Food to Compost Site

The Process

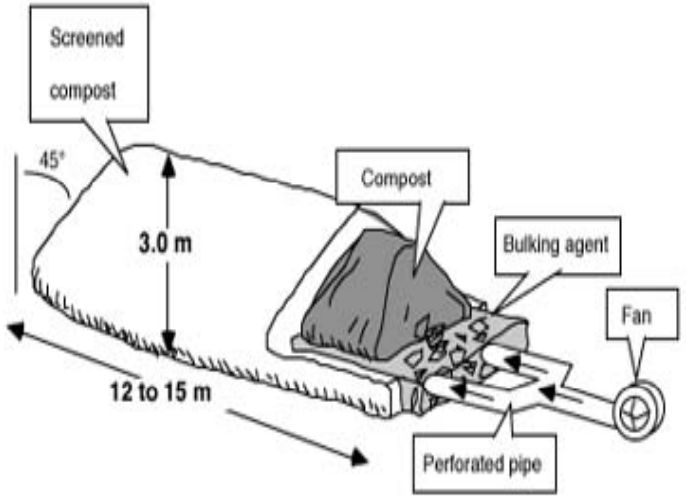
Farmington Food Compost Initiative 2005-2006
"A Cooperative Recycling Effort"
UMF
ARAMARK
Department of Environmental Protection
Sandy River Recycling
Franklin Community Health Network
Composting Area
"Pre-Consumer" Food Scraps
Compost Pre-mix
Collection Areas

Aerated Static Pile

- Static pile of compost mixture built on top of a perforated and air is blown up through the pile.
- Aeration provided by supplemental blowers.
    - Time
    - Temperature
- Windrow is covered by a 4-6 inch layer of finished compost along its length.
    - Insulation and odor control

Aerated Static Pile (Cont.)

- Initial mixture critical, must be homogeneous with good porosity.
- Odor control
  - Outer layer
  - Positive vs. negative aeration.
  - Enclosed and exhausted through a biofilter



- Higher capital and operating costs than static pile and turned windrow systems due to blowers, monitoring, and man power needs.

Living Acres-New Sharon

Receiving/Mixing

Turned Aerated Pile Composting

Bulk Blending Finished Products

Screening

Bagged and Ready for Sale

Little River Compost-Lisbon Falls

Incoming/Receiving

Mixing

Setting-up Compost Bed and Aeration

Compost Piles Set-up and Going

In-Vessel

- Most expensive option for composting-both capital and operational.
- Allows all facets of operation to be enclosed.
- Odors are captured and treated in biofilter.
- Allows you to optimize the process through continuous monitoring feedback and process control.
- Fastest compost time.
- Required routine maintenance.

Sugarloaf USA

The Earth Tub

Earth Tub-Green Mountain Technology

Collected Food is Loaded Through Top

Compost Mixture

Odors Are Scrubbed Through Biofilter Unit

Finished Compost Is Used on Golf Course

University of Maine-Orono

Receiving/Mixing Area

Compost Recipe

Compost System

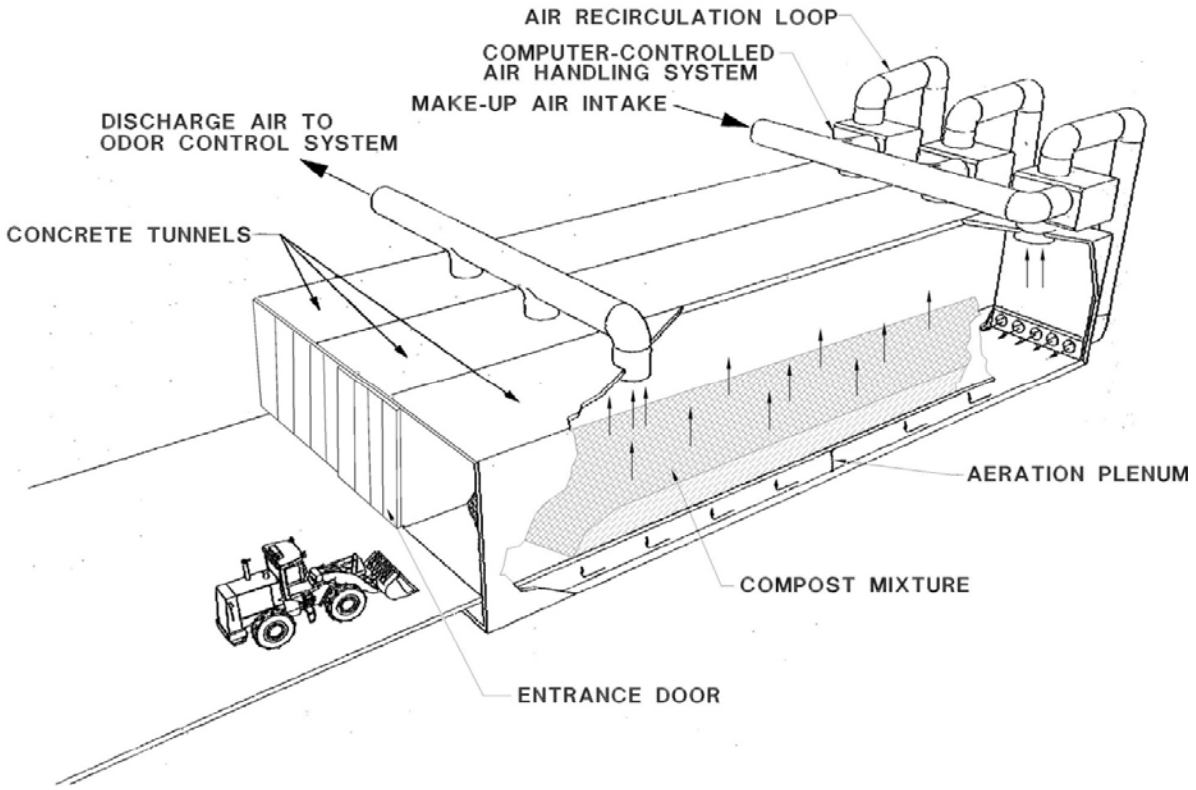
Finished Product

Casella Organics, “Hawk Ridge”

Receiving

Mixing

Gicom Composting Process



Aerated Curing

Screening and Blending

Ready for Sale

Picking The "Right" System

- Answer feedstock questions
  - Availability and handling issues
  - Tip fees
- Determine your annual processing capacity
- Develop a financial plan
  - Capital for equipment, labor, storage, feedstocks, marketing, etc.
- Determine the end-use for the finished product
- View as many real-life situations as you can