



# Presentation on **Yard Waste** and

# **Source Separated Recycling**

Where Does It Go? Is It Really Reused?



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By Commissioner Stan Mills

# Yard Waste

...is defined as plant material resulting from lawn maintenance and other horticultural gardening and landscaping activities, by example:

- Leaves & garden materials
- Pruning & tree branches under 4"
- Brush, shrubs, grass clippings



# Yard Waste Is Collected



Organics are transported to a yard waste collection facility.

Current yard waste facility used by Rehoboth is located in Milton, DE.



The Milton facility produces mulch and is sold to landscapers



If Rehoboth bought their mulch it would truly come full circle.



# Other yard waste collection facilities are available – all are licensed by DNREC.

Blue Hen Organics in Sussex County is a mulching and composting facility.



Aerial View of Blue Hen Organics



<http://www.bluehenorganics.com/>



# Yard waste collection facilities specify the types of yard waste they accept. What they accept determines what their recycled products are.

## BLUE HEN ORGANICS:

### Materials Accepted

- Yard Waste
- Leaves
- Grass Clippings
- Brush, Limbs, Branches
- Stumps, Logs, Trees
- Land Clearing Debris
- Ground & Chipped Wood
- Sawdust
- Sod, Root Mat, & Soil
- Poultry Manure



### Materials Not Accepted

- Household Garbage
- Treated or Painted Lumber
- Plastic, Glass, Metal
- Biosolids
- Any Non-Organic or Hazardous Material

### Recycled products sold by Blue Hen Organics:

- Topsoil
- Mulch
- Compost

## Blue Hen Organics – Yard Waste Recycling Process



Yard trimmings arriving at the Blue Hen Organics facility are weighed on a truck scale and the volume, material type, and weight are recorded by the facility's computer system. The trucks are then directed to the centralized tipping area for unloading. This assures optimal safety for customers dropping off yard waste because there is never a possibility for anyone to get too close to the grinding equipment.

## Blue Hen Organics – Yard Waste Recycling Process

The material is inspected for contaminants by load checking personnel, and any unacceptable materials are either returned to the truck or placed in a dumpster for transport to the landfill. The contaminant free material is sorted and moved to the grinding area by front end loader.



## Blue Hen Organics – Yard Waste Recycling Process

Yard waste is run through a large grinder.



## Blue Hen Organics – Yard Waste Recycling Process

After grinding, mixtures of organic materials are placed directly in trapezoidal windrows based on a computer model formula for each type of compost. These windrows are 16ft wide, 7ft tall, and 260ft in length.



## Blue Hen Organics – Yard Waste Recycling Process

During the initial composting period, windrows are monitored daily for temperature and moisture content. Records are maintained on site and include daily temperature readings, turnings, and documentation of the fifteen-day pathogen reduction period as required by the EPA.



## Blue Hen Organics – Yard Waste Recycling Process

Throughout the composting process, temperatures are maintained between 130-150 degrees Fahrenheit within the windrows by turning the windrows as needed. Moisture is adjusted by adding water with an on-site water truck as necessary to maintain a 40% to 50% moisture content.



## Blue Hen Organics – Yard Waste Recycling Process

When a windrow reaches proper aging parameters, the material is moved to curing pads for further aging. Curing windrows are monitored daily for temperature and moisture content.



## Blue Hen Organics – Yard Waste Recycling Process

Once the compost is mature, it is brought to the 3/8" or 3/4" trommel screen for screening. The trommel screen separates the composted yard trimmings into 3/8" minus fines and overs. Overs from the screening process generally consist of wood chips, fibrous material, and plastic contaminants. Contaminants are removed for disposal and/or recycling and the remaining overs are re-introduced into windrows and serve as inoculants to jumpstart the composting process in a new windrow.



## Blue Hen Organics – Yard Waste Recycling Process

Blue Hen's finished products are sold as compost, topsoils and mulch – coming full circle .



# Source Separated Recycling

Where Does It Go? Is It Really Reused?



# Delaware Solid Waste Authority (DSWA) collects recyclables

This is the DSWA transfer station in Milford, DE.



# DSWA's Milford Recycling Transfer Station



# DSWA's Milford Recycling Transfer Station

Rehoboth's recycling contractor is First State Disposal (FSD) – they dispose of recyclables collected in Rehoboth Beach at this facility.



# DSWA's Milford Recycling Transfer Station



# DSWA's Milford Recycling Transfer Station



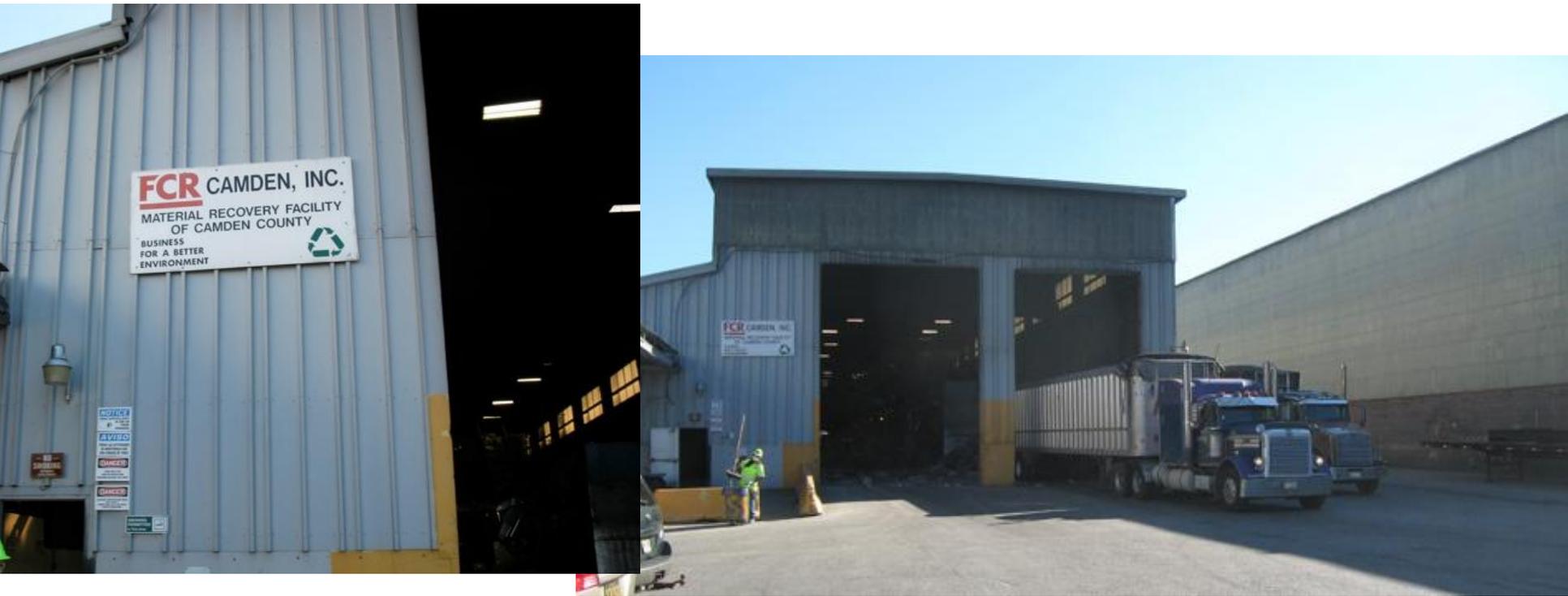
# DSWA Recyclables

Recyclables are a commodity.

- DSWA bids out weekly. 11 Vendors currently bid
- Typical fee might be \$20.00/ton in the north; half that in Sussex County (due to disparity in transportations costs borne by the bidding vendors.)
- Winning bidder provides trailers to be loaded and then transport comingled recyclables to their own material recycling facility.

One of the vendors which process recyclables from Delaware is FCR Camden, Inc.

## FCR Material Recycling Facility (MRF) in Camden, NJ



FCR has 22 MRFs on the East Coast. FCR employs 100 people at this facility. They typically process about 250 – 300 tons of recyclables a day using two shifts of 40 workers each. This processing plant is over 700 feet in length – almost fits two football fields inside.

# FCR's MRF in Camden, NJ



It all starts here.  
Single-stream recyclables with typically less than 10% comingled unwanted refuse is deposited on the floor.



A loader deposits the recyclables onto a conveyor belt that deposits the materials onto a very fast spinning wheel (lower left corner) which then throws all the recyclable material in the air so it will land one layer thick onto another conveyor belt.

# FCR's MRF in Camden, NJ

The processing machine covers half the building footprint and is three stories high.



# FCR's MRF in Camden, NJ

The processing machine contains multiple conveyor belts totaling approximately 3,200 linear feet in length.







# FCR's MRF in Camden, NJ

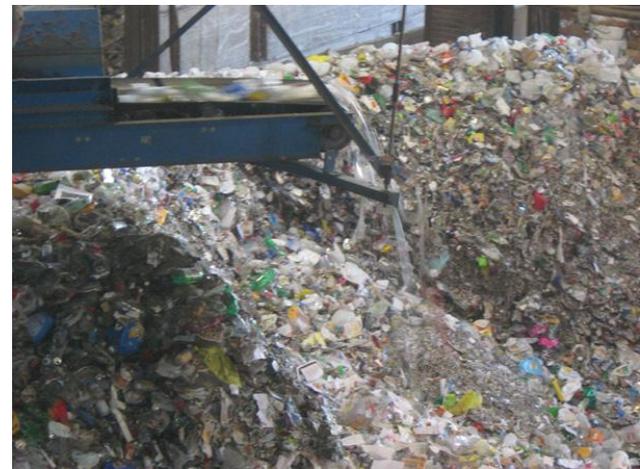
Comingled recyclables and trash in one end  
and sorted recyclables out the other.



How long does it  
take to sort?

# FCR's MRF in Camden, NJ

Average time from depositing into processor to baled or sorted product is...



...about 45 seconds.

# FCR's MRF in Camden, NJ

Can you identify the sorted recyclables?



# FCR's MRF in Camden, NJ

Not pictured – Cardboard & Glass

Paper



Food grade plastic



Non-food grade plastic



Bottle plastics



Tin



Aluminum



# FCR's MRF in Camden, NJ

Ready for shipping to plants for reuse in new products.



## FCR's MRF in Camden, NJ

- Glass makes up approximately 25% of single stream recyclables. Reuse for aggregate in landfills.
- Fiber = 60% (48% newsprint/12% cardboard). Reuse in new fibers, paper insulation.
- Tin = 7%. Reuse in rebar; bicycle parts.
- PET plastics = 8%. Reuse in water bottles' carpet fibers.
- Aluminum cans = 1%. Reuse by Anheuser - Busch for new cans.



**Yard Waste  
and**

**Source Separated Recycling**

**Is It Really Reused?**



**YES!**



# Bottles – caps on or off?



# Processor prefers caps off !



Caps off means:

- Bottles don't explode when crushed.
- Liquids are emptied so they don't interfere with optical sorters.