



# Organic Waste Streams at the University of Florida

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Jen Fallon and Charlene Volpe



# What is organic waste?

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- Organic material or organic matter refers to any material that is capable of decay or of being decomposed or is the product of decomposition, and is usually the remains of a recently living organism, and may also include still-living organisms.



# What is the purpose?

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- We are interested in learning about the possible sources of organic waste and how much the university produces
- We would like to be able to come up with a way to reduce the amount of organic waste produced or see if it can be recycled for other uses



# Albert A. Krause

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- Al Krause is the Solid Waste Coordinator of the Physical Plant Division (PPD) at the University of Florida
- We met with him on June 28<sup>th</sup>, 2006 where a lot of important data was gathered



# Waste Collection

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- UF pays \$2,000,000 a year to dispose of all waste (College of Medicine spends \$768,000 alone)
  - 265 trash dumpsters
  - 110 paper recycling dumpsters
  - 5 cardboard bailing machines
  - 2 paper compactors
  - 15 garbage compactors
- Approximately 38% of waste is recycled

# Waste Collection



Trash Compactor



Cardboard Compactor



# Waste Collection

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- The cost is determined by the volume of the container and how often it is emptied.
- Dumpsters are emptied each Tuesday and Thursday night
  - One truck may service anywhere between one to 90 dumpsters
- The Reitz Union and Housing pay for their own waste disposal.

# Waste Collection







# UF's Organic Waste Streams

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- The five organic waste streams are:
  - Yard Waste
  - Paper
  - Agricultural
  - Food Waste
  - Sewage



# Yard Waste

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- Yard waste is the major organic output at UF
- Heavy carbon content:
  - Byproducts of maintenance
    - woody materials
    - mowing waste
    - pruning waste
  - Dead leaves



# Yard Waste

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- The average amount of material collected is 288 tons per month (this includes street sweepings such as sand), but this can be higher during hurricane season



# Yard Waste

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- 25% of yard waste is to be considered non-organic
- All material is taken to the Wood Resource Recovery, which is roughly nine miles away
- They charge \$25.50 per ton disposal cost (includes rent, taxes, labor, machinery, utility, and sewage)



# Yard Waste

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- The cost of disposal does not include the cost of labor for UF
- UF currently pays \$50,000 a year to get rid of yard waste



# Yard Waste

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- Data does not include information from the golf course, sport stadiums, agricultural events, or the dairy labs and beef units
  - The golf course does not have a contract with PPD and takes care of its own waste
  - Sport stadiums are operated by University Athletic Association (UAA)
  - Anything agricultural maintains their own waste and usually recycle them for their own purposes



# Yard Waste

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- UF does not dispose of grass clippings, but rather leaves the clippings where they are cut
- Due to the use of the different sporting arenas, UAA uses a verticutter which vacuums the grass to stand straight so each piece is cut at the same height, but they do dispose of the clippings



# Paper

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- UF pays approximately \$182,000 each year to get rid of paper
  - \$122,000 in 2005
- UF mainly purchases recycled paper
- 70% of recyclable paper is recovered





# Paper

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- The average amount of mixed paper collected is 150 tons per month
- Recycling program is run by the Recycling Service of America, where it is measured per pound
- There is not a recycling program at the Beef, Dairy, or Biology units



# Paper

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- Recycling bins are placed in any building with more than 10 workers and where large amounts are gathered
- Recycling problems:
  - Some people do not take the time to separate trash from recyclables
  - Custodial issue



# Agricultural

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- Institute of Food and Agricultural Sciences (IFAS) is in charge of their own waste
  - Animals can graze on the grass instead of throwing away clippings



# Food Waste

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- Reitz Union
  - Mike Mironack is the operations director
  - All food waste separated into two compactors, one for cardboard and one for municipal
    - Reitz Union food services, the Career Resource Center, the hotel, the bookstore, and the business services all use these dumpsters



# Food Waste

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- Greek Dining

- Each house is in charge of hiring its own chef to prepare lunch and dinner, and they are not restricted to any particular company
- Food is delivered daily
- Food is disposed of in the nearby dumpster, but there are no recycling dumpsters due to the demand for parking



# Food Waste

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- Shands
  - Shands Children's Hospital
    - Cafeteria
    - Food Court
  - Shands at UF
    - Cafeteria
    - Food Court; vending machines
      - Wendy's, Pizza Inn, TCBY, Havan Mediterranean
      - Serves 1,473,554 meals a year.
    - Medical Deli Plaza: serves breakfast and lunch



# Food Waste

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- Gator Dining Services
  - The manager of Broward Dining is Fred Starr, which is owned by Aramark
    - America Bistro, Vegetarian Corner, Latin Flavors, Mediterranean Kitchen, Gator Grille, with drink stations including a self service Starbucks.
  - There is no data about the amount of waste



# Food Waste

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- Gator Dining Services
  - The two types of oil used are Arrezzio (90% vegetable oil and 10 % olive oil) and Frymax for deep frying
    - Normal oil and deep fry oil waste is not separated
  - Oil is disposed of into a tank located outside the cafeteria and Griffin Industries is called to pick up the waste oil when full.





# Food Waste

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- Gator Dining Services
  - Organic waste and inorganic waste is not separated
  - There is a trash dumpster as well as a cardboard compactor



# Food Waste

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- Stephen C. O'Connell Center
  - There are concession stands that sell food during events such as pizza, soft pretzels, nachos, and peanuts as well as drinks
  - Tidy crew, student workers employed by the O'Connell Center empty trash cans into a trash compactor and cardboard dumpster



# Food Waste

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- Stephen C. O'Connell Center
  - Organic waste and inorganic waste is not separated before being disposed of, nor is it measured
  - There is no recycling program in place, but one is being drafted for the next school year



# Sewage

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- UF has one plant, maintained by the Utility Superintendent Chuck Fender, that takes in all the sewage water from the school and reclaims the usable water for the sprinkler system



# Sewage

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- Biosolids are the wasted sludge from the plant.
- The irreclaimable is collected as wasted sludge in a bin then taken away by GRU to be either applied on a farm or buried on a landfill.



# Sewage

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- Animal wastes:
  - Considerably more heterogeneous mixture than biosolids.
  - The UF Veterinary school disposes of their wastes as a part of their regular office wastes.



# Origins

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- Currently, the University of New Hampshire has implemented an innovative organic waste stream.
- Using UNH has a model, the BioEnergy interns can garner knowledge for the development of their own waste stream management project.



# Origins

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- UNH developed compost programs and waste collection techniques.
  - Pilot program: utilized one dining hall to compost its own organic wastes.
  - Managed by 5 interns.
  - In the following year it was determined the amount each meal produced in pre and post consumer wastes.
    - Dining halls installed food pulpers
    - Interns collect the food waste every morning and bring the waste to an agronomy research station where it is composted.