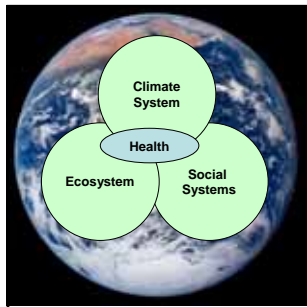




UNH: *Managing Waste at the Source*

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What is public health ecology?

- Human health and ecological health are linked
- Environmental factors influence the spread of disease
- Public health ecology seeks to support biodiversity and maintain the earth's natural balance

"The fate of the human species is inextricably interwoven with the collective fates of threatened wild spaces — and the plants and animals that live in them — around the globe."
From the Wilderness Medical Society on biodiversity and human health www.wms.org



Public Health and Solid Waste

Adverse health outcomes from poor waste disposal practices:

- Contamination of soil and water
- Infectious disease
- Air pollution from waste incineration, landfill and methane gas
- Export of wastes to other countries poses significant health and environmental threats



UNH: Managing Waste at the Source

Three waste streams previously undocumented at UNH:





1. Food waste
2. Agricultural waste
3. Waste being processed through the UNH Recycling Program

UNH: Managing Food Waste

- **Food waste:** includes uneaten portions of meals and trimmings from food preparation in kitchens, restaurants and cafeterias
- Food waste is the third-largest component of generated waste (by weight) in U.S.
 - 26.2 million tons or 11.4% by weight – 183.9 pounds per person
 - 25.4 million tons incinerated or land-filled
 - Landfill volume = 4,322,800,000 gallons
 - Composting most effective method to reduce food waste
 - Currently in U.S. 730,000 tons of food waste is composted annually – only a 2.8% recovery rate

UNH: Managing Food Waste





Composting food waste at UNH

- Waste from food preparation and uneaten meals at dining halls is composted
- Estimated to be a 95% recovery rate - Holloway, Stillings, Philbrick, Huddleston, and the MUB
- Systems were designed to minimize waste – prior to the composting program in 1998 food waste was estimated to be 50 tons annually

UNH: Managing Food Waste

The process:

- Trays on conveyor belts
- Waste is separated
- Flushed to the pulper
- Processed waste is refrigerated
- Transported to composting facility
- Spread in windrows

UNH: Managing Food Waste

Composting:

- Closes the cycle by returning nutrients/food to the earth
- Since the composting program began in 1998 over 300,000 pounds of food waste has been recovered
- Revenue is gained from selling the compost

UNH: Managing Food Waste

Source: www.sustainableunh.unh.edu/_/info/bio.html

UNH: Managing Agricultural Waste



Agricultural Waste: All types of farming byproducts generated by the rearing of animals and crop production


- Animal waste is a large component and includes manure, feed waste, bedding, litter, feed and paddock runoff
- crop residue (ex: cornstalks) is another large factor

UNH: Managing Agricultural Waste

**Major Sources of Agricultural Waste at UNH
2004 Data**

- Liquid Manure: 1.6 million gallons
- Solid Manure: 1500 cubic yards
- Spoiled Feed: 200 cubic yards
- Scrap Metal: 2 tons
- Carcasses: 8 tons

UNH: Managing Agricultural Waste



Fairchild Dairy Center: 120 cow dairy herd

- Manure is removed from the barn through a flushing system
- Liquid and solid are separated
- Manure is stored in a large open slurry tank – capacity of 1 million gallons
- Tank is aerated and microbes are introduced to change the organic content, reduce odor, and liquefy solids

UNH: Managing Agricultural Waste

Fairchild Dairy Center *(continued)*

- All of the liquid manure is applied to the University's 450 acres of crop land as fertilizer
- A portion of solid manure is sent to Kingman Farm for composting
- Spoiled animal feed consisting of grass and corn silage is reapplied to the farmland




UNH: Managing Agricultural Waste

Equine Facility: 45 horses

- Stables are cleaned several times each week
- Waste is stored and reapplied to the land

Burley-Demeritt Farm: 100 miniature swine for nutritional research


- Waste is flushed from the barn to a holding pool
- Cow carcasses are composted at the farm
- Swine carcasses are picked up by a rendering company





UNH: Recycling Program

- Started by a student group in 1990
- Now operated by *Facilities, Department of Grounds and Roads*
- Materials recycled through the program:
 - Aluminum cans
 - Glass bottles
 - Plastic bottles (only #1 and #2)
 - Tin/steel/metal scraps
 - Paper: colored & white
 - Newspaper, magazines, catalogs, phonebooks
 - Paper board (ex: cereal boxes)
 - Corrugated cardboard
 - Ink Jet and Laser Toner Cartridges

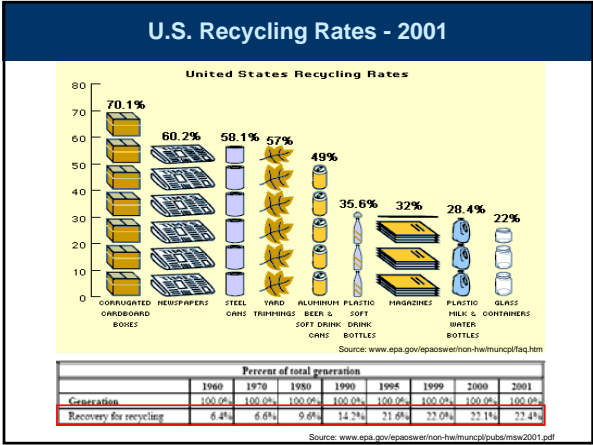


UNH: Recycling Program

Data of recycled material from Fiscal Year 2004

- OCC: *old corrugated cardboard* = 154 tons
- Commingled (bottles and cans) = 101 tons
- Paper = 608 tons
- Metal scraps = 54 tons
- Confidential destruction = 21 tons

According to program literature 1995 recycling rates at UNH reached 25 – 30% and have remained steady since



UNH: Managing Waste at the Source

Highlights

- Partnerships created and strengthened in all these processes:
 - Office of Environmental Health and Safety
 - University Hospitality Services
 - Office of Sustainability - Food and Society Initiative
 - UNH Compost Program
 - COLSA
 - Kingman Farm
 - Department of Animal & Nutritional Sciences
 - Facilities
 - Student Housing
 - Housekeeping
 - UNH RENU
 - UNH/Durham community



More.....

UNH: Managing Waste at the Source

Highlights: UNH is ahead of the curve!

- 2.8% food waste recovery in U.S. – estimated 95% from dining halls at UNH
- Farming culture supports a “waste is food” philosophy
 - Respect for the land
 - Reusing has been long practiced
- Recycling program & composting program move forward through student support and commitment
- Composting program generates revenue from waste - \$4,000 annually
- Recycling program generates revenue – \$22,000 annually

UNH: Managing Waste at the Source

Challenges:

- Solid waste management programs should be based on targeted goals with incentives for decreased waste generation
 - *Can't measure progress because data for total waste is unavailable*
 - *Need more incentives for decreasing waste*
- Waste management programs should include strong public education campaigns in source reduction, reuse, recycling, and composting
- Applying biowaste to the land – risk of chemicals and disease pathogens
- Manure provides key nutrients to the land, but is a source of water pollution – nitrogen & phosphorous run off

UNH: Managing Waste at the Source

What can you do?



- Reduce, Reuse and Recycle
- Pollution Prevention: *always consider the source*
- Get involved and spread the word
- Support legislation
 - Mandatory recycling
 - Product labeling: "biodegradable," "recycled," "recyclable," "post-consumer waste"

Remember -- it's all connected
Our environment is our health



"So that's where it all goes! Well,
I'd like to thank you fellows for
bringing this to my attention."

UNH: Contact information



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SWEMP – UNH www.unh.edu/ehs/SWEMP
Solid Waste and Environmental Management Planning

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