Introduction

Confined Animal Manure
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Purpose

- Learn the science of composting and how to apply this science to a successful composting operation.
- Understand the relationship of compost quality to successful marketing and utilization of compost.
- Consider the environmental and social impacts of a composting site on its surroundings.

What is composting?

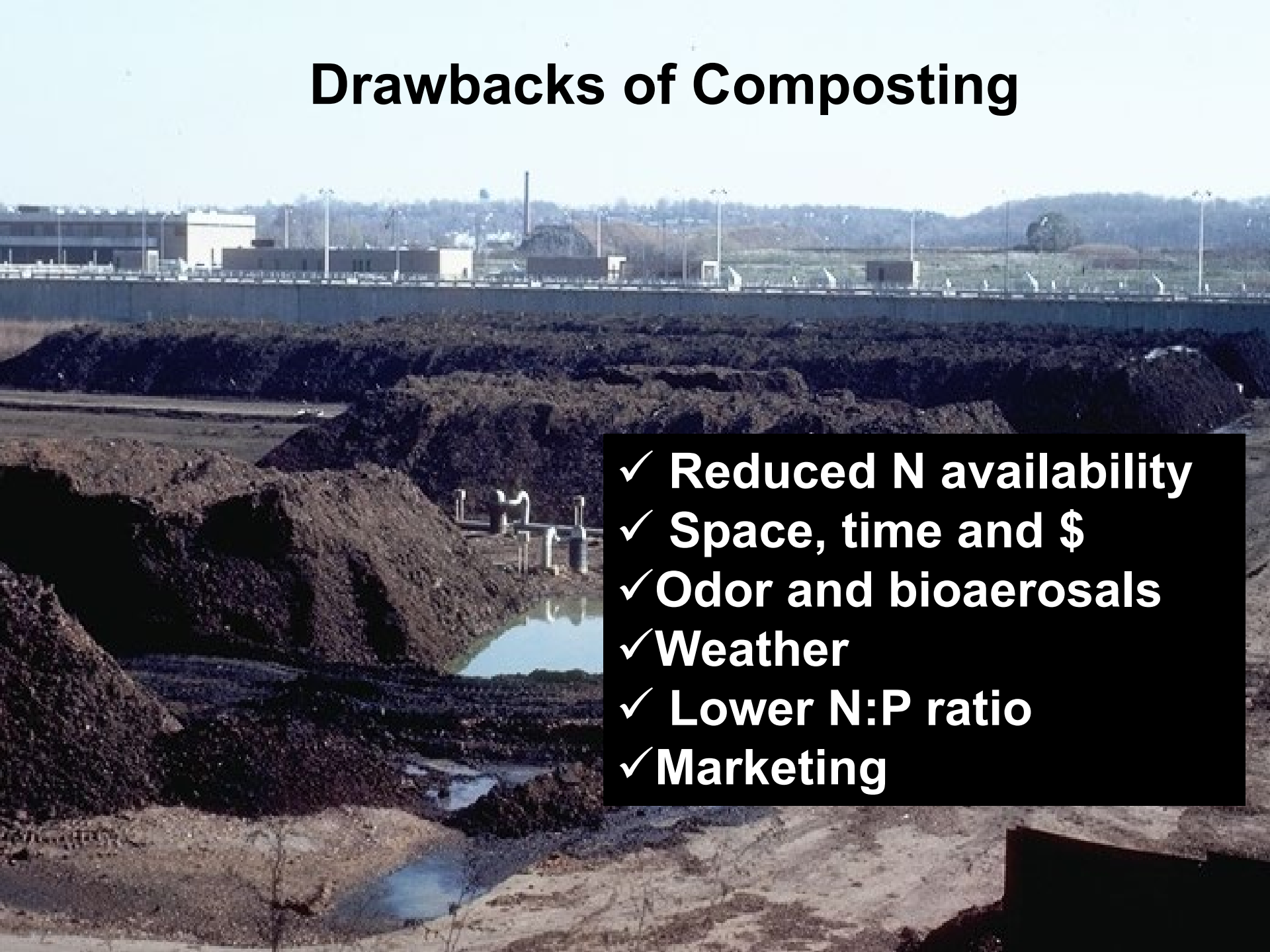
- Composting is a biological process in which microorganisms convert organic materials such as manure, sludge, leaves, paper and food wastes into a soil like material called compost. (NRAES-54)
- Composting accelerates and directs the natural process of decomposition of organic materials by controlling mixtures of organic materials and the environment in which they are transformed into a useful and stable product called compost

Why Compost?

- Remove organic material from the waste stream
- Produce a useful soil conditioning product
- Income stream (tipping fees, product sales)
- Service to citizens
- The green thing to do


Benefits of composting
✓ Reduces volume
✓ Improves handling and storage
✓ Produces Class A material
✓ Creates beneficial product
✓ Potential tipping fees

Drawbacks of Composting



- ✓ Reduced N availability
- ✓ Space, time and $
- ✓Odor and bioaerosals
- ✓Weather
- ✓ Lower N:P ratio
- ✓Marketing

Big Picture

- Composting operations do not operate in a vacuum
- Part of a larger system that influences the success of the process and compost utilization…
- …and also is influenced by what happens at and around the composting facility

Where does your composting operation fit in this cycle?

- Composting only
- Collection of waste, transportation and composting
- Further processing of raw compost into a value added product
- Sales and marketing of product
- Delivery and application of compost

Other items

- Environmental Protection
- Feedstock source(s)
- Quality control of feedstock
- Education of contributors
- Cost/income – tipping fees, taxpayers, purchased materials
- Public perception of operation + or –
- Political realities
- Regulations

Philosophy of Operation

- Waste disposal/processing
- Value added organic product manufacturing
- Income generating business
- Municipal service subsidized by taxpayer
- Cash generating enterprise of a farm, landscaping business, waste hauling business…

Physical and political influences

- Land, air, water quality
- Noise, nuisance, vermin, dust esthetics
- Traffic, site generated, other
- Neighbor relations
- Public vs private operation and competition
- Regulations and policy
- Political climate

Composting Involves Numbers

- Feedstock accounting
- Recipe development
- Collection and manipulation of physical, biological and chemical measurements
- Labor and financial numbers

Typical Characteristics Composters Need to Measure

- Length/Distance – inches, feet, yards, miles, centimeters, meters, kilometers
  - set back from property line, length of windrows, dumping height of loader bucket

Typical Characteristics Composters Need to Measure

- Area (distance X distance) – square inches, square centimeters, square feet, square yards, square meters, acres
  - size of property, area composting pad surface, area needed for storing annual leaf crop

Typical Characteristics Composters Need to Measure

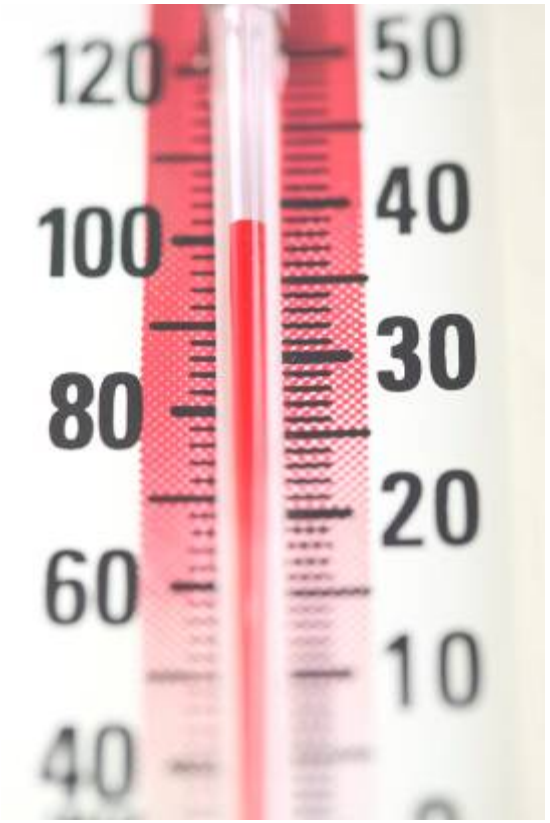
- Volume (area X distance) – cubic inches, cubic centimeters, cubic feet, cubic yards, cubic meters, gallons, acre inch
  - Capacity of a truck body or container, volume of water from an impervious surface, size of a bag of compost, quantity of material in a storage pile

Typical Characteristics Composters Need to Measure

- Weight – pounds, kilograms, tons, tonnes
- Density (weight per unit volume) – pounds per cubic foot, kilograms per cubic meter, tons per cubic yard
- Moisture content of materials – how much water is in it?

Typical Characteristics Composters Need to Measure

- Nutrient content of materials – how much nitrogen, phosphorus…
- Temperature



Farm-Based Manure Composting
Questions to ask yourself

Are you going to use the compost on-farm only?
Are you going to wholesale the compost?
Are you going to retail the compost?
Are you going to take in materials from off-site
Do you think expansion is a possibility?

Composting

Its not rocket science…..

But it is science

And art