Lesson 10: Composting Economic Fundamentals

Learning Objectives:

- Understand basic business financial principles and terms
- Know major revenue sources and expenses of composting
- Realize the importance of unit costs for evaluating operations
- Be familiar with concept of a pro-forma

Business Finance Fundamentals

- Balance Sheet:
  - A snap shot of the financial health of an operation
- Income Statement (Profit & Loss):
  - Shows income, expenses and profit/loss
- Retained Earnings Statement (Equity):
  - Shows change in equity held in the business
- Cash Flow Statement:
  - Shows the impact of cash in and cash out on balance sheet

Balance Sheet

Snapshot at a given point in time of:
(e.g. end of fiscal year)

- Assets:
  - Land
  - Buildings
  - Equipment
  - Contracts
  - Accounts Receivable
  - Product
- Liabilities:
  - Loans
  - Accounts Payable
  - Leases
  - Buildings & Equipment Depreciation

Income Statement

- Revenues:
  - Tip Fees
  - Compost Sales
  - Grants
  - Equipment Sales
- Expenses:
  - Labor
  - Fuel
  - Equipment M&R
  - Lease Payments
  - Contract Services
  - Debt Service
  - Insurance

Full Cost Accounting

- Expands the Income Statement to include indirect costs and benefits:
  - Indirect Costs: administrative overhead, city services, etc.
  - Indirect Benefits: avoided landfill tip fees, avoided soil purchase, carbon credits, etc.
- Provides a more complete picture of costs and benefits of compost

Importance of Unit Costs

- Determine the unit cost ($ per ton) for each stage of the operation
- Example – Grinding

Front End Loader:	
Annual Lease / Debt Service	$23,000
Annual Fuel and O&M	$39,000
Grinder:	
Annual Lease / Debt Service	$32,000
Annual Fuel and O&M	$109,000
Labor:	
Equipment Operator	$32,000
Total Annual Cost	$235,000
Annual Throughput (tons/year)	93,600
Average Cost/Ton	$2.51

Unit Revenue(Cost) by Activity

Facility Scenario: **Receives 24,000 CY of YT and 6,000 CY of VW annually** **Sells 15,000 CY/year of compost**			
Activity	**Annual Revenue (Cost)**	**Per CY of Feedstock**	**Per CY of Compost**
Tip Fee	$82,500	$2.75	$5.50
Receiving & Grinding	($75,000)	($2.50)	($5.00)
Windrow Construction	($10,000)	($0.33)	($0.67)
Active Composting	($33,000)	($1.10)	($2.20)
Curing	($5,000)	($0.17)	($0.33)
Screening	($35,000)	($1.17)	($2.33)
Compost Sale Revenue	$90,000	$3.00	$6.00
Net Revenue (Cost)	$14,500	$0.48	$0.97

Composting Facility Pro-Forma

- Pro-Forma:
  - Estimates revenue and expenses based on anticipated feedstocks, capital costs, operating costs, and revenue
  - Projects future cash flow
  - Assesses business viability, e.g. profit, return on investment, and net present value
  - Allows one to conduct sensitivity (“what if”) analyses based on differing assumptions, e.g. throughput, tip fees, compost sales, fuel cost, etc.

Components of Pro-Forma

- Assumptions:
  - Financial, materials flow, technology, equipment & labor inputs, capital & operating unit costs, growth factors
- Capital Cost Estimate:
  - Site development, structures, equipment, engineering, permitting & contingency
- Annual Cost Estimate:
  - Labor, O&M, cost of capital, taxes, etc.
- Annual Revenue Estimate:
  - Tip fees, compost sales, grants
- Financial Analysis
  - Projected cash flow, net income, net present value, rate of return, return on investment, etc.