Composting and Carbon Policy

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Problem Statement

The aim of our study was

- To update the existing compost model to take best compost use practices into account and maximize greenhouse gas (GHG) emission reductions.
- To discover these best compost use practices for the City of Davis in accordance with state bill (SB) 1383 - a state mandated 75% reduction in landfill organic waste by 2025, based on 2014 levels.
Context

- Composting
  - Process that biologically decomposes and stabilizes the organic substance under thermophilic conditions
- Senate Bill (SB) 1383
  - 75% reduction in landfill organic waste by 2025
- City of Davis - Natural Resource Commission (NRC)
  - Team responsible for researching and creating appropriate legislation
- Clements Environmental Corporation
  - Failed to take end-use of compost into account
# Research Findings

<table>
<thead>
<tr>
<th></th>
<th>Compost as a slow-acting fertilizer</th>
<th>Compost as a landfill cover</th>
<th>Composting with aerobic processes</th>
<th>Benefits to agriculture</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Less expensive</td>
<td>Reduces methane emissions</td>
<td>Reduces methane production</td>
<td>Adds organic matter to soil, improves plant growth and decreases water use</td>
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<td>More effective than synthetics</td>
<td>Better water infiltration</td>
<td></td>
<td>Encourages the production of beneficial bacteria and fungi that break down the organic matter</td>
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<td>Can reduce soil-borne diseases</td>
<td>More cost effective</td>
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**Effects**
- Poor reduction of GHGs → climate change
- Lack of public involvement
- Stress on landfills
- Policymakers/public unaware
- Financial burden
- Waste of valuable organic material

**Main Problem**
Lack of appropriate compost-use practices

**Roots**
- New technology/Lack of research
- Insufficient funding
- Climate change → SB 1383
- Lack of knowledge → insufficient infrastructure
Methods - Stakeholder Analysis

Composting and Carbon Policy

- Locals
- NGOs
- International Chapters
- Farmers
- Energy/PGE
- Counties with similar/no program
- NRC
- City of Davis
- Waste Management Organizations
- Industries
- Food
- Groceries/Restaurants
- Profits
- Universities Scientists/Researchers
- Students
- State Government
- Compliance
- Funding
- Tax payers (Voters)
- Common Members
- UCD Waste Management
- Waste Producers
- Packaging
- GNG Affected

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Moving Forward

- What are current agricultural compost practices in Davis?
- How much compost is/will be created?
- How much would compost use-phase processes cost?
- How can interested students (stakeholders) get involved?
- What is the city’s timeline regarding research and final application?
- How accessible is the implementation of possible technologies?
Thank you
Any questions?