Improving Compost Quality

With Worms and Soil Ecology
What’s the Deal?
Benefits

- Two-week curing time
- Reduced land use
- Increase in product quality
- Potential for new, higher-value markets
- New revenue streams
Costs

- Another building
- Additional equipment
- Increased labour costs
- New market development
- Cost of worms
Value of Compost

Compost’s most important and valuable function in the future might be as a vehicle for the growth, transfer to the soil, and maintenance in the soil of beneficial microbes.
Soil biological succession causes plant succession

Bacteria ...A few Fungi......Balanced .......More Fungi...... Fungi

<table>
<thead>
<tr>
<th>Bacteria:</th>
<th>10 µg</th>
<th>100 µg</th>
<th>500</th>
<th>600 µg</th>
<th>500 µg</th>
<th>700 µg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fungi:</td>
<td>0 µg</td>
<td>10 µg</td>
<td>250</td>
<td>600 µg</td>
<td>800 µg</td>
<td>7000 µg</td>
</tr>
</tbody>
</table>
## Comparison

<table>
<thead>
<tr>
<th></th>
<th>Total Fungus (μg/g)</th>
<th>Total Bacteria (μg/g)</th>
<th>F:B Ratio</th>
<th>Nematodes (#/g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local compost</td>
<td>177</td>
<td>2928</td>
<td>0.06</td>
<td>0</td>
</tr>
<tr>
<td>Vermicompost</td>
<td>1940</td>
<td>1458</td>
<td>1.33</td>
<td>154</td>
</tr>
</tbody>
</table>
Lettuce Trials
Lettuce Trials -- Results

Lettuce Yield

Average weight of head (g)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Average Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>259.1</td>
</tr>
<tr>
<td>2</td>
<td>257.5</td>
</tr>
<tr>
<td>3</td>
<td>313.0</td>
</tr>
</tbody>
</table>

Series 1
Potential Markets

- Organic fertilizer market growing at 15-20% annually
- Compost tea market (local)
- Opportunity for “designer composts”
- TerraCycle
- Need for atmospheric carbon reduction strategies
Vermiculture – Soil By Design
Vermiculture – Soil By Design
The SBD Compost Value Enhancement System (CVES)

- Based on soil foodweb science
- Uses worms as agents for promoting microbial growth
- Treats partially finished compost as substrate for microbial growth
- Modular – can start small and grow
- Flexible – many products possible
- Can fit into any conventional composting system (replace curing phase)
Summary of Future Opportunities

- Development of local compost tea markets, particularly turf (golf courses, landscapers, etc.) and high-value agriculture (e.g., vineyards, blueberries and other small fruit)
- Development of bagged specialty composts for home gardening market
- Development of specialty agriculture products such as humates and specific microbial inoculants
Thank You!