

## SCD Probiotics®

### Case Study Summary – Composting Yard and Food Waste with SCD Probiotics®

*Composting Yard and Food Waste (CSS-021-09)*

**Industry:** Composting - Private Industrial Company  
**Application:** Products applied to compost yard and food waste  
**Products:** Customized solution using ProBio Balance Plus™

### Highlight

- Significant improvements in the time required to produce compost, the quality of the final product, and total odor control

### Introduction

Municipalities and private companies alike should compost all yard and food waste garbage. Some composting companies already operate in several cities; however, their management is very difficult due to a variety of reasons—no garbage separation practices in individual households, the presence of inorganic garbage, the high operation costs of heavy machinery to prepare compost, bad odors, the tendency of compost to attract unpleasant animals, the length of time to produce compost, and a risk for compost with low nutritional value.

This customer wanted to reduce the time to make compost from yard and food waste, to control the odor created during the composting process, and to obtain a compost with high nutritional value at a very affordable cost.

### Methodology

The raw materials to be composted were mostly food and yard waste. They were 100% separated and the following was removed: plastic, metal, glass, debris and textiles. Things remaining in the pile included organics, paper, and carton. The pile was inoculated with a customized solution made using ProBio Balance Plus™, keeping a balanced ratio of material and moisture.

During the composting process, for size reduction and homogenization, large pieces of paper, cardboard, food, and yard waste were broken down slowly to 1.2-5 cm, using a Bobcat. The materials were mixed, formed, and the windrows were shaped. Windrows were 1.5-3 m in height and 3-6 m wide. During autumn, the height was increased to 2.5 m and width to 5 m. In winter, the height was further increased to 3.5 m.

Windrows were turned on Day 0, 8, 15, 23, 30, and 37. Then they were left for 10 days before being sieved on Day 50 or 60.

Optimal compost conditions are as follows:



- Oxygen: >10%
- C/N ratio: 30:1
- Moisture: 40-60%
- Temperature: 32-43°C

## Results

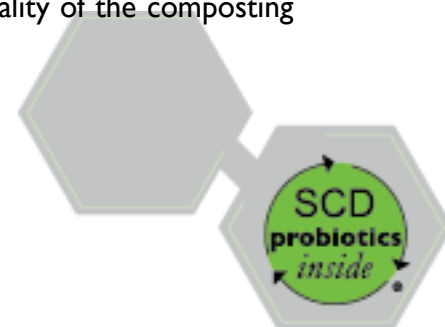
The goals of the project were achieved, with significant improvement in time required to get compost, quality of the final product, and total odor control.

The odor from the composting process was significantly less when it was compared with the time before this project. The parameters of the compost showed a great success when it was compared to the general good quality compost standards (Table I).

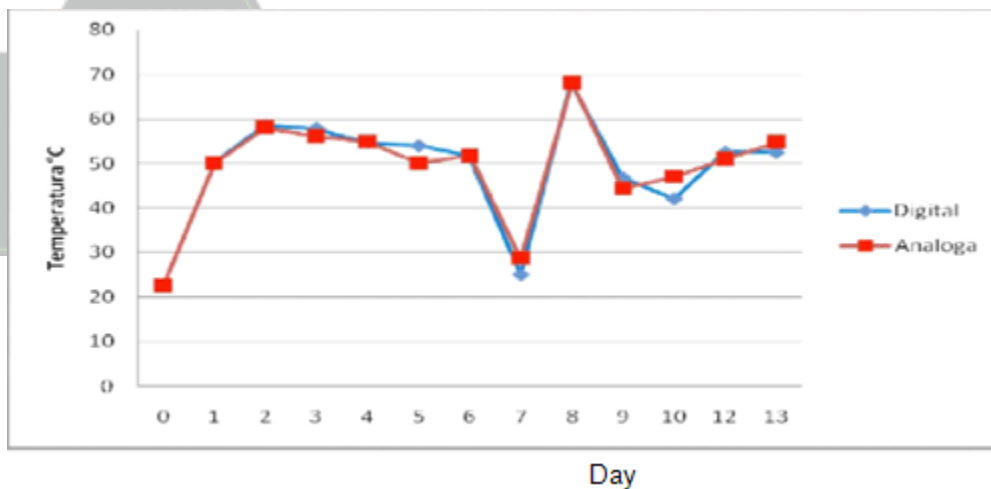
**Table I.** Nutritional Value of Composting Yard and Standards

PARAMETER	SCD- treated compost	Mature – Good quality compost standards
Appearance	Solid brown	Solid brown
pH	8.1	6.5 - 7.5
Total Available Nitrogen (N)	2.14%	1.0 - 2.5%
Total Available Phosphorous (P <sub>2</sub> O <sub>5</sub> )	0.92%	0.75 - 1.5%
Total Available Potassium (K <sub>2</sub> O)	4.56%	1.0 - 4.0 %
Total Organic Carbon	30.0%	Min 20.0%
C/N Ratio	14.0	< 25
Total Organic Matter	54.0%	
Total Calcium (CaO)	5.04%	
Total Magnesium (MgO)	1.43%	
Total Iron	0.27%	
Manganese (ppm)	229	
Zinc (ppm)	185	

The temperature started at 20°C on day 0 and it increased to 58°C in only two days. At the end of the first week, the pile was turned, and a second thermophilic stage started. The temperature of the compost was around 50°C on the end of 2<sup>nd</sup> week that shows the quality of the composting process.



**Table II: Temperatures During the Process**



## Conclusions

SCD Probiotic showed significant improvements in the time required to produce compost, the quality of the final product, and total odor control.

