SCD Probiotics®

Case Study Summary – Commercial Composting with SCD ScentGuard™
Odor Reduction in Commercial Composting (CSS-023-10)

Industry: Commercial composting
Product: SCD ScentGuard™ (formerly sold as SCD Odor Away™)
Application: Odor control at a composting facility

Highlights

- All trial goals were achieved, including a 35% average reduction in foul odor emissions
- Odor was reduced to under the required limit—reducing the fines and pressure from the regulatory agency and protecting the composting facility from future financial penalties, which can be as much as $2000 per violation. The quality of the compost was improved, making it much more marketable

Introduction

In 2010, complaints about foul odor emissions coming from a commercial composting facility were made to a regulatory agency by neighboring businesses. These complaints resulted in fines and the potential for further financial penalties if the odor was not managed. The goals of this trial were to reduce odor, meet regulatory standards, and improve the compost quality.

Methodology

The facility accepts 15,000 metric tons of organic waste yearly and has the composting capacity of 20 windrows. Each windrow consists of 175 tons of material; of that, 125 tons are organic food waste.

Data was taken at least twice a week, from six areas around the facility, beginning at three weeks prior to the application to test the odor of the compost material with a scentometer (olfactometer) (Nasal Ranger®).

In scentometry, the air from the site is diluted with filtered, odorless air until the tester can no longer sense the initial odor. The values that the scentometer reads are as follows: 2, 4, 7, 15, 30, and 60, where 60 is the highest dilution value.

Prior to applying SCD ScentGuard, the average reading was 7.4, which is above the regulatory limit of 7.

Each windrow was sprayed with SCD ScentGuard directly on the organic waste as it was incorporated into the windrow. A second application was sprayed during the first turning of the windrow (7-10 days later) (see Pictures I, II and III).

Pictures

Picture I: Arial View of Missouri Organic.

Picture II: Organic Waste Incorporated into Rows

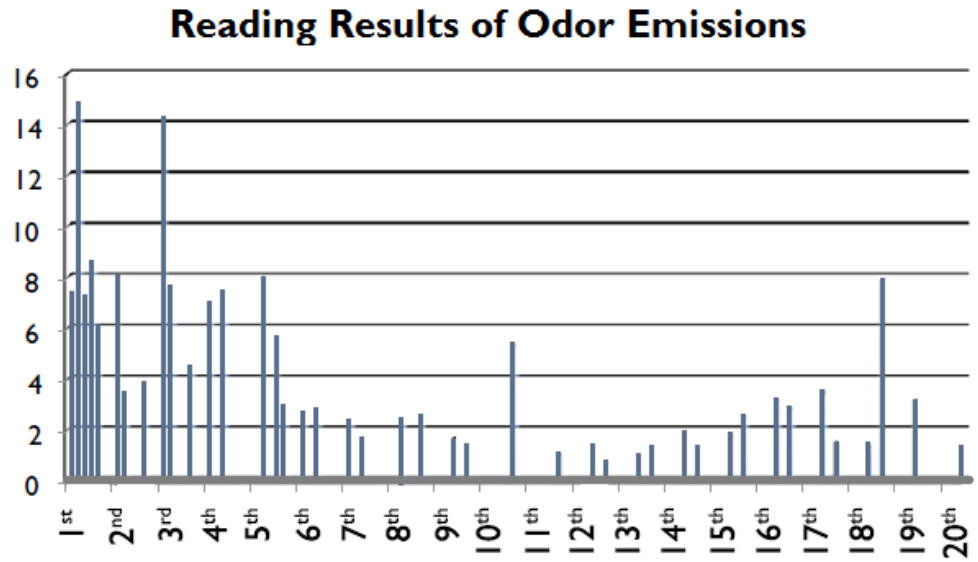
Picture III: Shifter

Results

At the end of the 4-month trial, all trial goals were achieved. The odor was reduced under to the required limit and the quality of the compost was improved.

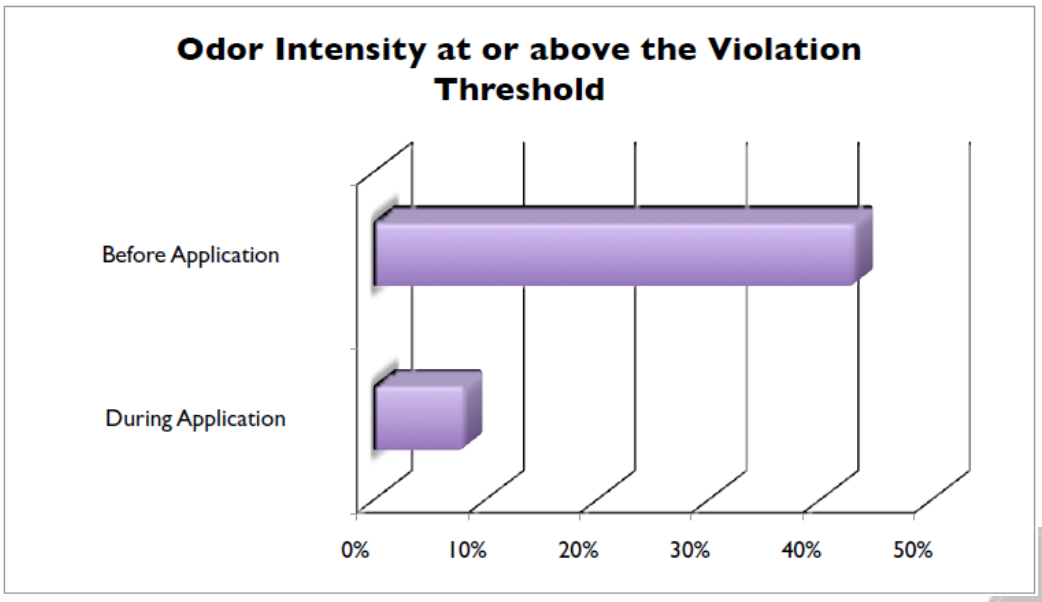
Prior to the first application of SCD ScentGuard, the average results of scentometer readings were above 7. After the first application, results were below 7, even reaching under 4 (Table 1).

Table I: Reading Results of Odor Emissions



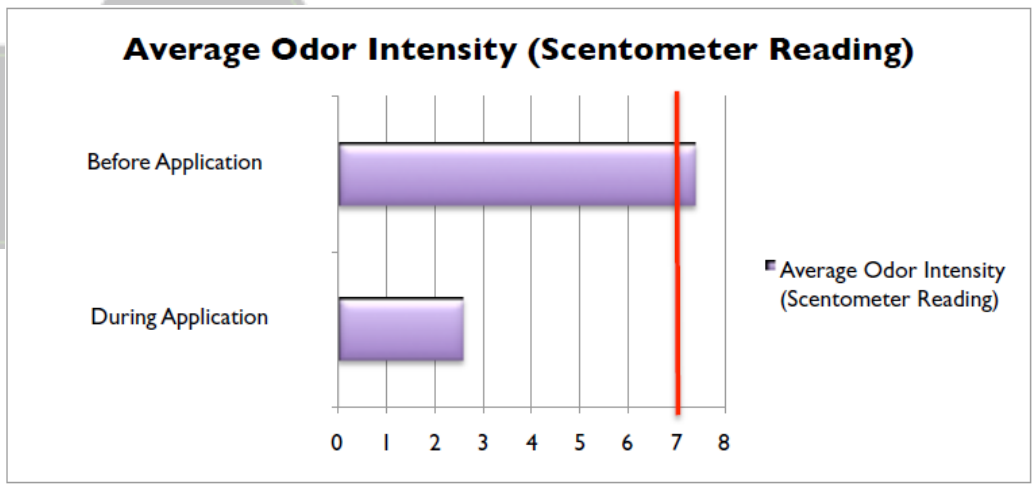
Before application of SCD ScentGuard, odor emissions were over the regulatory limit at a 43% rate. During application, on average, the odor emissions were over regulatory limits at a rate of 8% (Table II).

Table II: Odor Intensity at or Above the Level Violation



The application of SCD ScentGuard greatly diminished the odor being produced. The average odor intensity went from 7.4 to 2.6, bringing the odor well under regulatory limits (Table III).

Table III: Average Odor Intensity

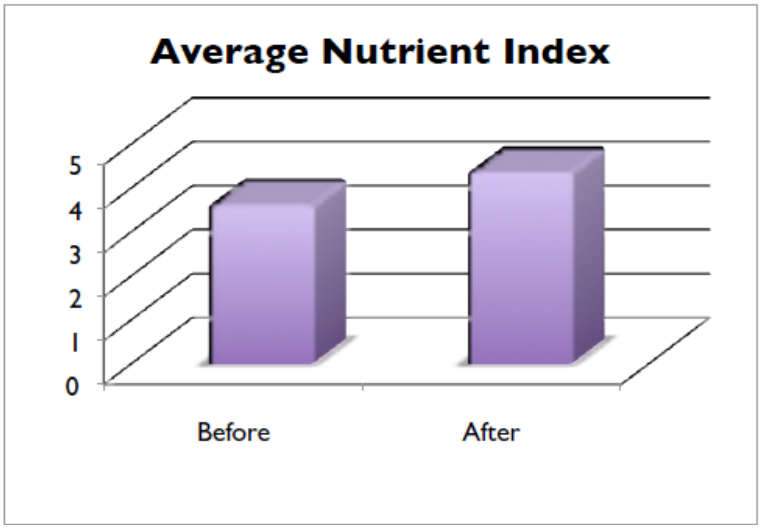


*Red Bar: Regulatory odor limit (with scentometer reading)

While the input of waste is important, there is evidence to support improvement in the quality of compost.

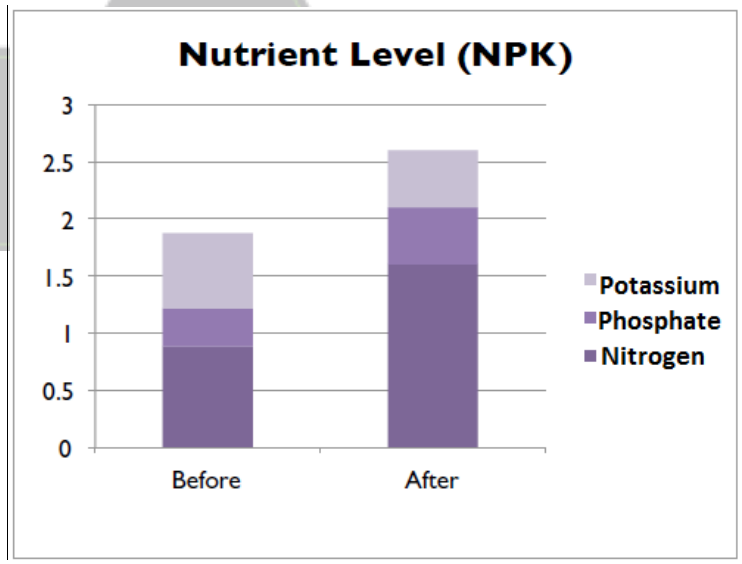
The Nutrient Index is obtained by dividing the total nutrients Nitrogen, Phosphate, and Potassium (abbreviated as NPK) by the amount of salt (Sodium and Chloride). The higher the Nutrient Index, the less chance of having a toxic buildup of Sodium (salt) in the soil. During treatment with SCD ScentGuard, the results showed an increase in the Nutrient Index (Table IV).

Table IV: Average Nutrient Index



Compost data is commonly expressed in amount of NPK. If a compost result has the rating 1-2-2 it means that, the compost has 1% Nitrogen, 2% Phosphate, and 2% Potassium. Most compost tests will have an average nutrient level (N+P+K) of <5%. As shown below, the average NPK levels increased after the application of SCD ScentGuard.

Table V: Nutrient Level (NPK)



Testimonial

"We want to openly express that the application of SCD Probiotics (products) indeed produced remarkable results…both in the odor control and the product quality." – Customer

The customer reported complete satisfaction with the trial and has integrated the use of SCD Probiotics products into their foul emissions-control program with plans to continue use indefinitely.

He went on to highlight that there was an improvement in odor quality at the facility—the overall odor of the product is no longer rotten but earthy and sweet—and that they were recognized by the regulation agency as taking proactive measures towards ending the emissions issue.

"We now consider SCD Probiotics a value-added ingredient to our final products." We are also advertising SCD Probiotics Technology by including the technology logo on our retail bags of compost.

Conclusions

SCD ScentGuard offers a sustainable option for controlling foul odors associated with commercial composting. In addition to odor control, SCD Probiotics enhances the nutrient level of the compost. Probiotics have delivered the following results:

- On average, a 35% reduction in foul odor emissions
- Increase in quality of compost including Nutrient Index
- Compost is much more marketable
- Reduction of fines and pressure from MDNR
- Fines can be as much as $ 2,000 per violation
- Fines assessed have been waived upon further use of SCD Probiotics