MICROBE-LIFT® Technology Speeds Sugar Cane Waste Composting while Producing Higher Quality Fertilizer

Location: **Magdalena Sugar Plantation , Guatemala**

Background: On sugar plantations, cane waste solids called "cachaza" are produced as a by-product. This cachaza is separated from the sugar cane juice and composted for use as a fertilizer.

Magdalena Plantation produces 900 cubic meters of cachaza daily. Using a conveyor system they build 400 meter long windrow rows of cachaza each day and have space for 40 of these rows on site.

Fig. 1: *A large conveyor system was built to handle large volumes of cachaza filling dump trucks which will be used to build windrows.*

Fig. 2: *This picture depicts placement of the windrows.*

Based on numerous field applications, Ecological's core technology has shown benefits in increasing the efficacy of composting. Use of MICROBE-LIFT® core technology has been shown to:

- Shorten the time required to reach heap temperature
- Reduce time to stabilize the compost
- Reduce residual volume
- Improve screening properties
- Improve fertilizer value of the compost

Objective:

The plantation's management wanted to increase efficiency of composting in order to reduce labor and increase the capacity of their facility. A field trial was developed to assess the benefits of bioaugmentation with MICROBE-LIFT® core technology that had shown efficacy in numerous other compost applications.

Fig. 3 & 4: *The standard procedure of adding moisture to the cachaza before composting offered an ideal opportunity for seeding the cachaza with* MICROBE-LIFT®

Two identical sections of a row were set up whereby one was inoculated with MICROBE-LIFT® while the other represented an uninoculated control. The same volume of moisture was added to the cachaza in each row. Temperature and humidity of both rows were measured every week.

Fig. 5-7: *Temperature is recorded and samples taken for moisture analysis.*

Typically a tractor aerates the rows on a scheduled basis. This process was maintained on the regular schedule for both treated and control rows.

After the initial application at the factory, additional applications are made in the field. The first of the field application was performed after 10 days.

Fig. 8 & 9: *Each dose is sprayed on the row before the aerating tractor turns the row to mix, allow gases to escape, and oxygenate the cultures.*

Results Achieved:

The increased degradation of the treated windrow compared to the control is already very evident when the third application was performed 23 days later.

Fig. 10: *The difference in the rate of composting is very evident in the treated vs. the control rows by this time validating the increased degradation rate of* MICROBE-LIFT® *cultures.*

Faster composting reduced labor costs by reducing processing time. Since the cachaza that contained MICROBE-LIFT® was also being composted at a faster rate, it offered less resistance to the aerating tractor saving additional time and labor. This in turn resulted in less wear of tractor parts and less use of diesel fuel by the tractor. In addition, they noted a significant reduction in the flies due to the reduced odor in the area.

Since the microorganisms in MICROBE-LIFT® are growing in the cachaza, the residual microbes in the compost will have additional value in the fertilizer as these strains have demonstrated the capability to increase growth and yields in agriculture crop applications. Overall this trial was determined to be a success providing numerous benefits to the management of the sugar plantation.

For more information on MICROBE-LIFT® Technology contact

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