Vietnam: BioAktiv Produces More & Better Compost

Fig. 1: The trial site in Ho Chi Minh City

BioAktiv for Compost, like all BioAktiv products exploit the specific natural *bio-resonance frequencies* (electro-magnetic waves) to effectively increase the multiplication of aerobic bacteria in the composting material. The increase in the population of aerobic bacteria suppresses the propagation of anaerobic bacteria, and as a result, it speeds up the biodegradation process that produces compost (organic fertilizer). The effectiveness of BioAktiv was proven in a large-scale trial in a composting plant in Ho Chi Minh City, Vietnam in March 2010.

Waste Treatment Facility

The waste treatment facility, on a 30-year service contract with the Department of Natural Resources and Environment of Ho Chi Minh City, is a high-tech multimillion US-dollar multipurpose facility for treating solid wastes. The facility receives 1200 tons of garbage from Ho Chi Minh City everyday and processes 720 tons of it with environmentally friendly technologies to convert it into useful products.

The collected garbage is first sorted into different types. Recyclable plastic matters are thoroughly washed and reprocessed into plastic pellets that are sold to manufacturers. Metal matters are also recycled.

Organic matters are turned into high quality compost as organic fertilizers for agriculture. This is done in three shelters in the facility. Each shelter houses 10 piles of composting raw material (about 60m wide and 200m long or 850 to 1200 tons). Besides replacing the expensive imported fertilizers, the compost produced also provides benefits that chemical fertilizers cannot provide.

The Trial

Two piles of garbage collected were used as composting material for the study. On February 25, 2010, 159.25 tons of material was collected and used as trial pile. This trial pile was treated with standard dose of microbes and 5.5 kg of *BioAktiv for Compost*. Another 158.50 tons of material was collected on March 6. This pile was only treated with standard dose of microbes to serve as control.

Temperatures of 18 points of both the trial and control piles (see Fig. 2) were recorded during the 45 days of composting process for comparison.

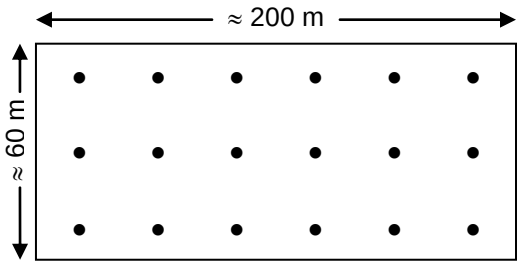

Fig. 2: The 18 temperature measuring points

At the end of composting process, samples of the trial and control piles were taken on April 22, and May 10, (56 and 65 days) respectively and the weights and quality of sellable compost produced were compared.

The Results

The average temperatures (°C) of the both the piles over the process period are shown in the graph in Fig. 3.

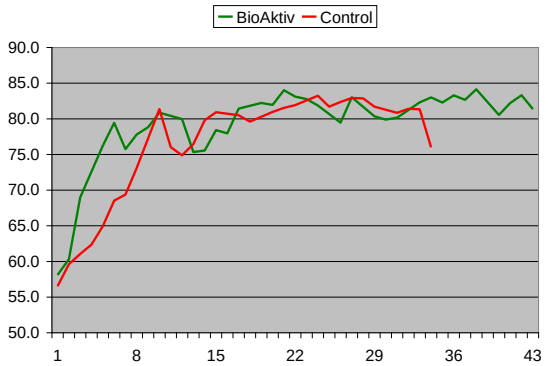

Fig. 3: Temperature comparison

It should be noted that temperature indicates the rate of the biodegradation or composting process. The higher the temperature means the faster the composting process. It is clear from the Fig. 3 that the trial pile reached the optimum operating temperature of about 80°C three days earlier than the control pile, indicating that BioAktiv effectively catalyzed the microbial processes.

The weights of raw material used, processed material, sellable compost (diameter smaller than 20 mm) produced, and reject material (diameter more than 20 mm) of both piles and percentages to the weight of raw material used are given in Table 1.

Table 1: BioAktiv produces more compost

	BioAktiv		Control	
	tons	%	Tons	%
Raw material	159.25	100	158.5	100
Processed material	46.53	29.2	49.01	30.9
Sellable compost	35.42	22.2	22.95	14.5
Reject material	11.11	7.0	26.06	16.4

% – percent of raw material

Data in Table 1 show that the use of BioAktiv produced 222 kg of sellable compost per ton of raw material compared to only 145 kg without BioAktiv. That is BioAktiv produces 77 kg or 53% more compost. This clearly shows the effectiveness of BioAktiv as a biocatalyst for the composting process. The rejected material is reduced by more than half. Notably, with the use of BioAktiv, 76% of processed material is converted to sellable compost. Without BioAktiv, less than half the processed material is sellable compost (see Fig. 4).

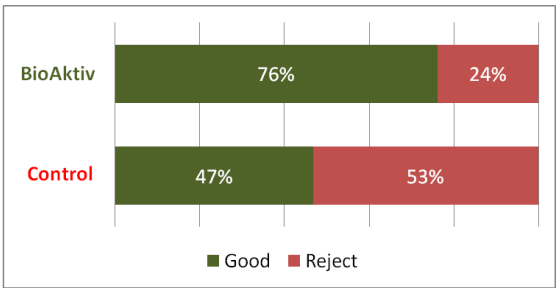

Fig. 4: BioAktiv, an effective biocatalyst

The samples of compost produced (dia. < 20 mm) of both piles were analyzed two days after they were collected. BioAktiv compost sample was sieved (2 mm) into two parts before analyzes. The results are given in Table 2 and Table 3.

Table 2 shows that BioAktiv compost was drier and met the moisture standard. Table 3 shows that BioAktiv compost was richer in all nutrient components – nitrogen, phosphorus, potassium, organic carbon and organic matter.

Table 2: pH, electrical conductivity (EC) and moisture

	pH (1:5)	EC (1:5) mS/cm	Moisture (%)
Standards	6.0-8.0		< 35
BioAktiv (Φ<20mm)	8.56	3.61	33.87
2mm<Φ<20mm	8.72	5.06	
Φ ≤2mm	8.99	3.42	
Control	8.13	5.66	42.9

Table 3: Chemical contents (in % by weight)

	Standard	BioAktiv		Control
		>2mm	≤2mm	
Total nitrogen	≥ 2.5	1.266	1.237	1.219
Available P_2O_5	≥ 2.5	0.85	0.93	0.77
Dissolved K_2O	≥ 1.5	1.179	1.409	1.115
Organic carbon	≥ 13.0	15.78	18.75	11.66
Organic matter		27.33	32.48	20.20

Return on Investment

From the study it can be seen that the use of BioAktiv produces an extra of 77 kg per ton of raw material. The amount of BioAktiv needed for one ton of raw material is 34.5 g (5.5 kg ÷ 159.25). This means that, you only pay for 34.5 g of BioAktiv to get 77 kg of compost extra or 1 kg of BioAktiv for 2.23 tons extra compost.

Additional Benefits

Besides providing extra income, you can get the following additional benefits from BioAktiv:

- **Energy and labor saving**: BioAktiv speeds up the composting process making the composting material finer faster. You need to agitate the composting material less and hence save energy and labor.
- **More environmental friendly**: Because you use BioAktiv, the composting process is faster and more complete. This also reduces the odor drastically, providing a better environment to the workers and surrounding neighborhood.
- **Better fertilizer**: The more complete composting process also produces organic fertilizer with richer nutrients, which can fetch a high price.