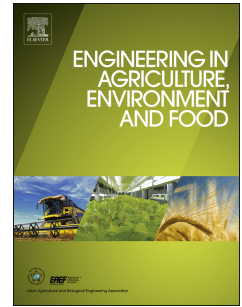


# Accepted Manuscript

Cattle manure composting in a packed-bed reactor with forced aeration strategy

Naoto Shimizu, Joko Nugroho Wahyu Karyadi, Michio Harano, Kazunori Iwabuchi, Toshinori Kimura



PII: S1881-8366(16)30061-1

DOI: [10.1016/j.eaef.2018.01.002](https://doi.org/10.1016/j.eaef.2018.01.002)

Reference: EAEF 169

To appear in: *Engineering in Agriculture, Environment and Food*

Received Date: 12 September 2016

Revised Date: 29 December 2017

Accepted Date: 12 January 2018

Please cite this article as: Shimizu N, Karyadi JNW, Harano M, Iwabuchi K, Kimura T, Cattle manure composting in a packed-bed reactor with forced aeration strategy, *Engineering in Agriculture, Environment and Food* (2018), doi: 10.1016/j.eaef.2018.01.002.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# Cattle Manure Composting in a Packed-Bed Reactor with Forced Aeration Strategy

Naoto Shimizu<sup>\*, a, b</sup>, Joko Nugroho Wahyu Karyadi<sup>d</sup>, Michio Harano<sup>c</sup>,

Kazunori Iwabuchi<sup>a</sup>, Toshinori Kimura<sup>a</sup>

<sup>a</sup> Research Faculty of Agriculture, Hokkaido University, Kita 9, Nishi 9, Kita Ku,  
Sapporo, Hokkaido 060-8589, Japan

<sup>b</sup> Field Science Center for Northern Biosphere, Hokkaido University, Kita 9, Nishi 9,  
Sapporo, Hokkaido 060-8589, Japan

<sup>c</sup> Formerly Graduate School of Life and Environmental Sciences, University of Tsukuba,  
1-1-1 Tennodai, Tsukuba, Ibaraki 305-8572, Japan

<sup>d</sup> Faculty of Agricultural Technology, Universitas Gadjah Mada, Jl. Flora No.1  
Bulaksumur Yogyakarta, Indonesia

## Abstract

The aim of this study was to determine the appropriate strategy for cattle manure composting with forced aeration. The composting of cattle manure was conducted using an 18.8 L reactor with three different amounts of total air supplied (1080, 3240 and 10800 L/kg dry mass) during 360 h of composting using continuous and on/off sequencing (20 min/h) aeration methods and three turning patterns (no turning, full turning and turning with position change). The degradation of organic matter in three-stage systems (the compost was turned every 120 h over the 360 h period) was significantly affected by total air supply volume and was large in the case of on/off

---

\* Corresponding author.

E-mail: shimizu@bpe.agr.hokudai.ac.jp

Phone& Fax: +81-11-706-3848

Download English Version:

<https://daneshyari.com/en/article/8878667>

Download Persian Version:

<https://daneshyari.com/article/8878667>

[Daneshyari.com](https://daneshyari.com)