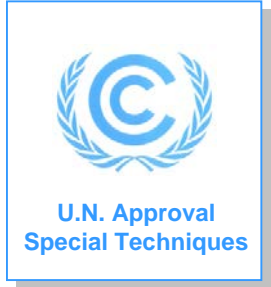


RA-X ラックス®

Can Change Animal Excreta and Polluted Water to Fertilizer
A Screw Type Compost Plant

Japanese Patent No.3607252



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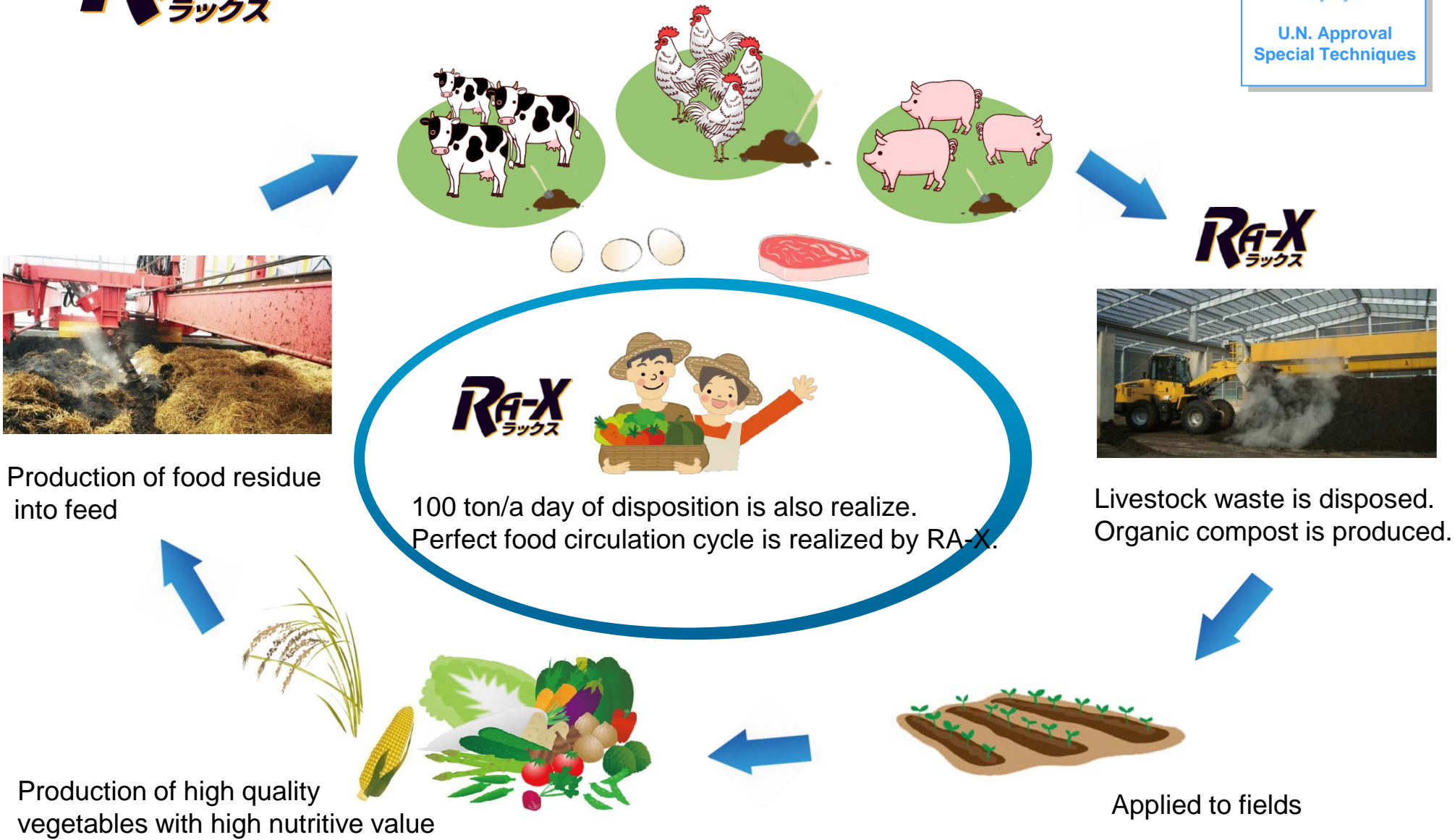
<http://www.kawashima.jp>



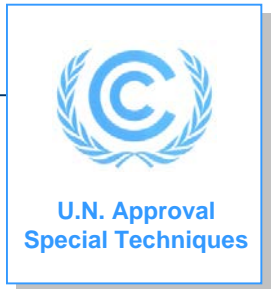
Three features of RA-X

- 1. Aerobic high temperature fermentation !*
Short period composting can be performed.
- 2. Even if there is abundant moisture, it can mix perfectly !*
NO foul odors, NO sewage !!
- 3. More than 100 tons of food and livestock waste can be composted per day !* (It can compost in one month to three months)





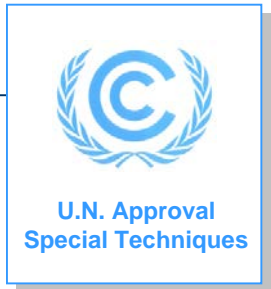
The Features of RA-X



- **Easy maintenance & low maintenance cost.**
Mechanism and structure are simple, consumption fee is very low and power consumption is suppressed.
- **Keep temperature high when stirring and save energy in fermentation.**
Control of fermentation by operator is easy and it is possible to treat organic waste stably throughout the year
- **Possible to process solid organic waste and dirty water like urine at the same time.**
Stirring is certain regardless of moisture amount. The machine is seldom out of order. It can control materials which contain high concentration of waste.
- **Possible to ferment organic waste at high temperature in cold area.**
Piling is possible up to 1.8m high and fermentation is achieved at high temperature
- **Diffusion of bad smell during working is very limited.**
Prevention of diffusion of bad odor to surrounding is easy and save the cost.
- **Fitting for various type of business project.**
It is possible to propose various methods to treat organic waste with various model of machine.
- **Patent protected.**



Japanese patent No. 3607252



The technology of RA-X obtained U.N. recognition.
It's based on high safety, perfect reliability, and a positive track record.

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Your location: Home > Project Cycle Search 09:58 12 Jul 12

Project 4064 : Co-composting of EFB and POME at PT. Sabut Mas Abadi in Kumai

Project title	Co-composting of EFB and POME at PT. Sabut Mas Abadi in Kumai - project design document (1510 KB) PDD appendices - Appendix 1 - 4064 ER 4064 (57 KB) - Appendix 2 - 4046 F-Price Sheet (18 KB) - registration request form (170 KB)
Host Parties	Indonesia , involved indirectly approval (223 KB) authoriza Authorized Participants: PT. Api Metra Palma
Other Parties Involved	Japan , involved indirectly approval (111 KB) authoriza Authorized Participants: ITOCHU Corporation
Sectoral scopes	13 :Waste handling and disposal
Activity Scale	SMALL
Methodologies Used	AMS-III.F. ver. 8 - Avoidance of methane emissions through controlled
Amount of Reductions	16,275 metric tonnes CO2 equivalent per annum
Fee level	USD 1755.0
Validation Report	Validation report (783 KB) MoC Annex 1 Modalities of Communication valid as of 18/05/2012 Public availability information Link to information uploaded for public availability
Registration Date	12 Feb 11 (view history)
Crediting Period	01 Apr 11 - 31 Mar 18 (Renewable)
Requests for Issuance and related documentation	

PROJECT DESIGN DOCUMENT FORM (CDM-SSC-PDD) - Version 03

CDM – Executive Board

Category: Avoidance of methane production from palm oil mill effluent and empty fruit bunches through co-composting

Technology

The proposed project activity will be implemented using unique technology invented by Kawashima Co., Ltd, which is a combination technology of using composting machine RA-X and probiotics BX-1.

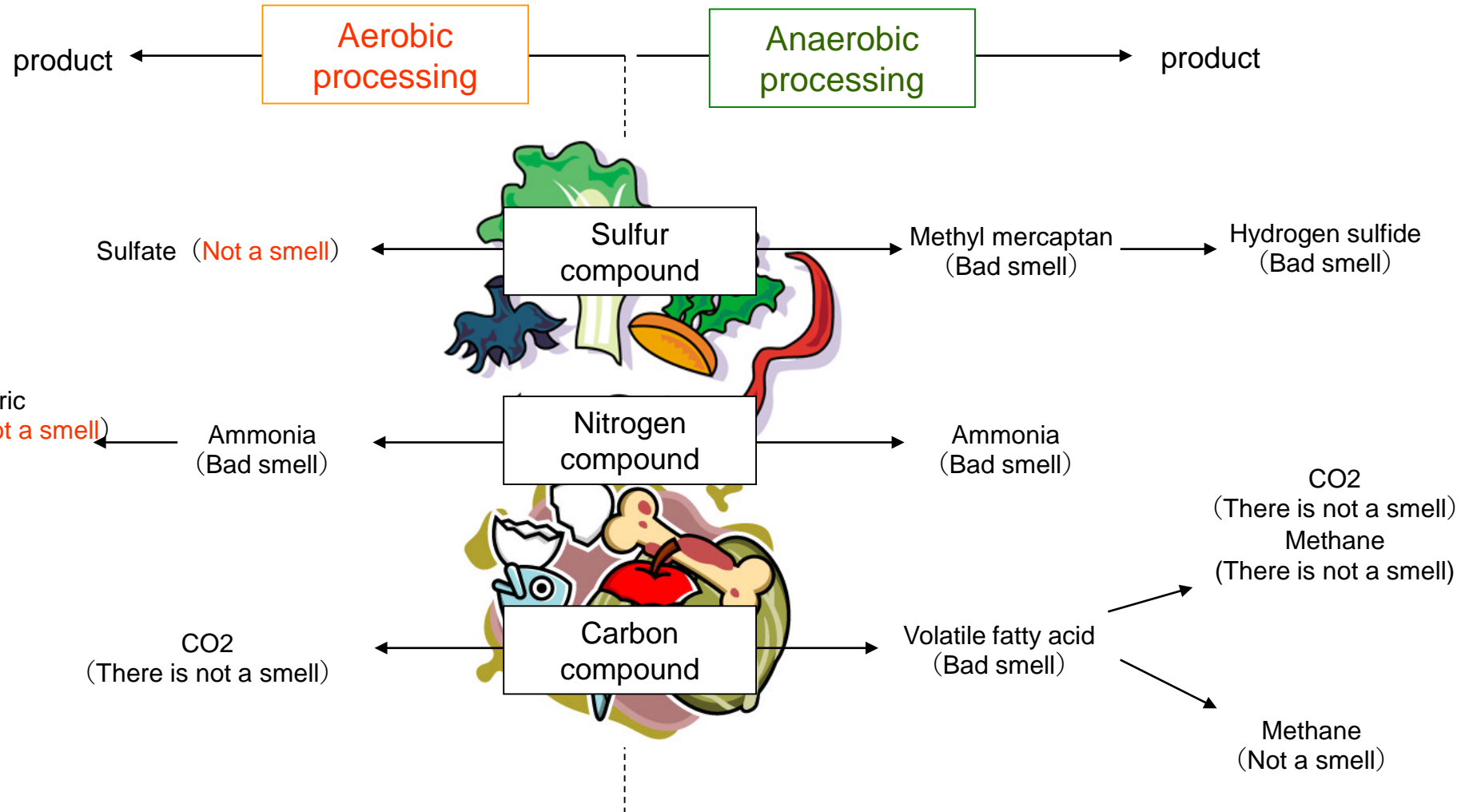
The each specific component of the Kawashima Co., Ltd.'s technologies, which is going to be introduced to Sekeman through this project activity, are as follows:

- Screw type compost plant RA-X
- Probiotics BX-1

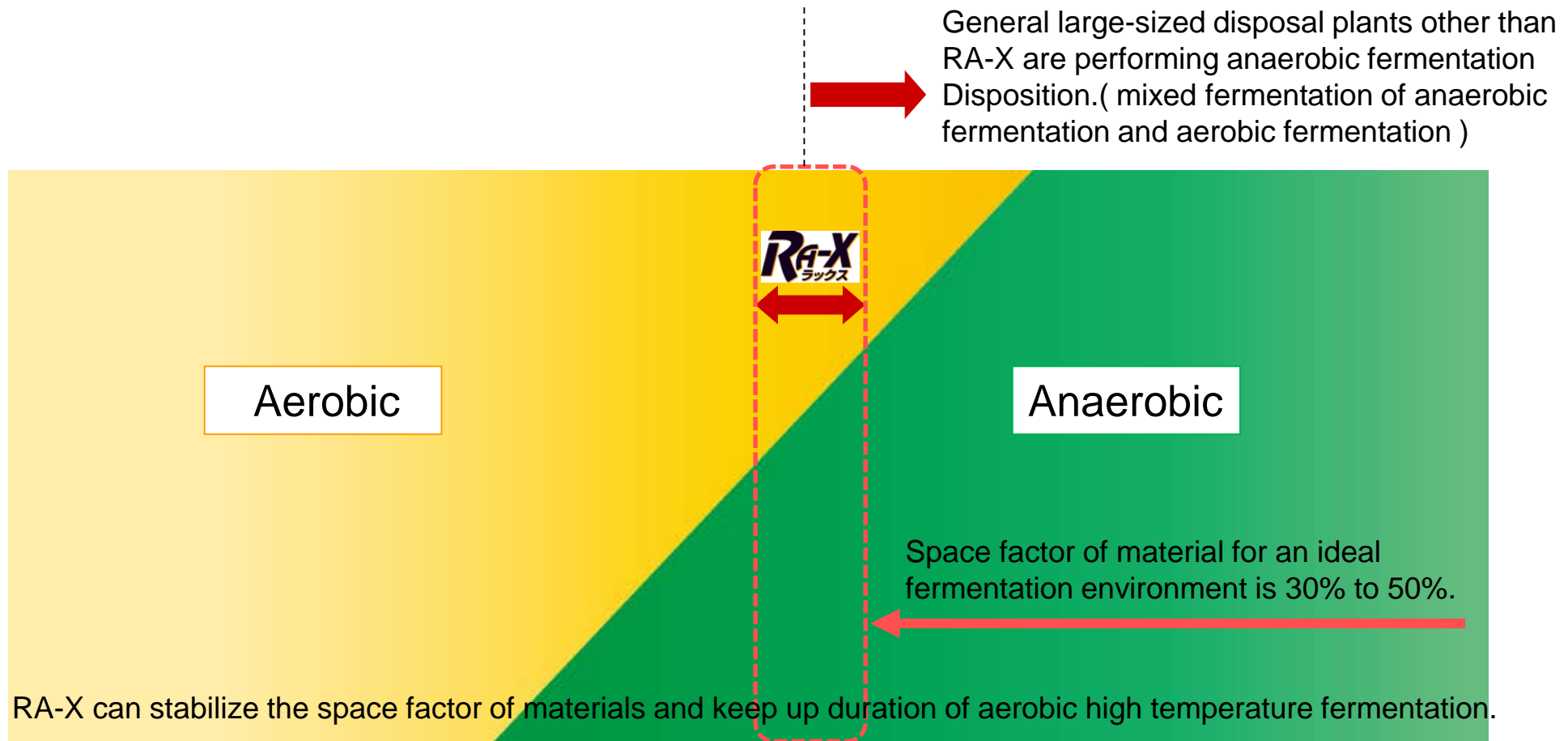
The major characteristics of combination technology of RA-X and BX-1 are as follows;

- Keeping high temperature during composting
- Easy maintenance
- Possible to aerobically compost treat organic wastes with high moisture content

The aerobic fermentation can control methane.
 Anaerobic fermentation generates methane which is one of the greenhouse gas.
 Compared with carbon dioxide, greenhouse effect of methane is 21 times.



Aerobic fermentation disposition was impossible for large-sized compost plants processing over 100 tons.



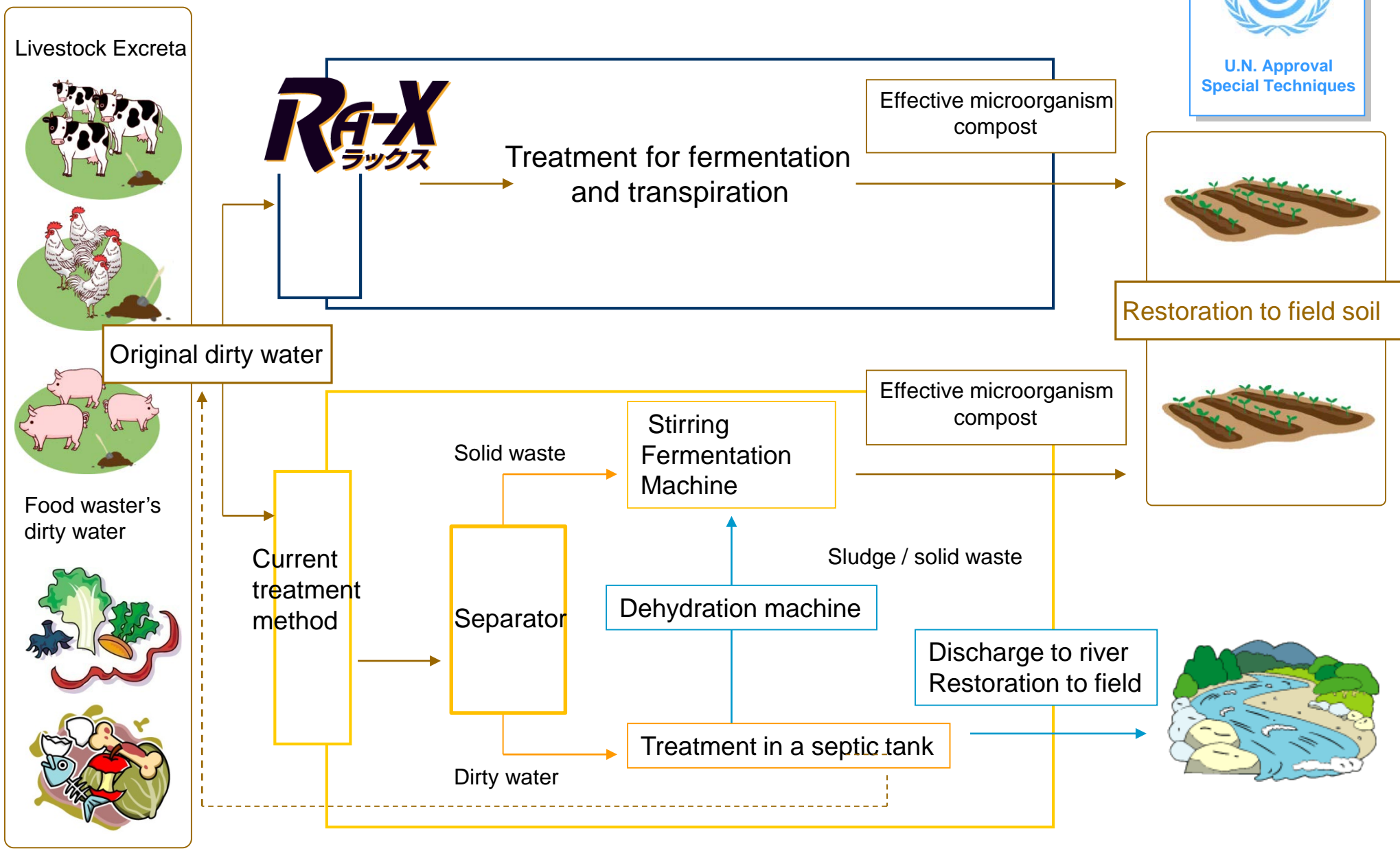
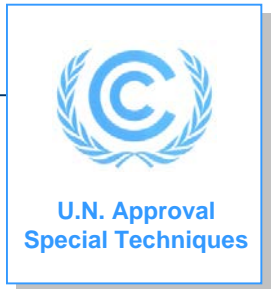
Comparison feature of three types of machines for processing of Animal droppings



**U.N. Approval
Special Techniques**

Item \ System	RA-X (Screw method)	Scoop method	Rotary method
Pit for treatment	Max width 12m Max length 100m Piling height 1.8m	Max width 3m Max length 100m Piling height 1.8m	Max width 4m Max length 100m Piling height 1.2m
Treatment of organic waste and dirty water at a time	Possible	Impossible	Impossible
Ideal moisture for fermentation	Less 70%	Less 60%, Dispersion of moisture is not allowed	Less 60%
Possible working hours per day and stirring speed	10 hours (ideal) Speedy	Within 8 hours Slow	10 hours (ideal) Slow
Durability of machine	Good enough	Dissatisfied	Moderate
Maintenance	Easy enough	Difficult	Moderate
Handling and control	Good enough	Difficult	Good
Consumption parts	Screw	Racket	Stirring bar
Quality of compost product	Good enough	According to the operator's skill	According to the operator's skill
Moving distance of compost	50~60cm per a stirring	1.5m per one stirring if the moisture adjusted constant	1.5m per one stirring if the moisture adjusted constant
Variety of model of machine	Variety	Different in circular or in pit width	Different in pit width and depth
Aptitude of fermentation to compost	Easy to ferment even in cold district	Good to ferment	Difficult to ferment in cold area
Diffusion of bad smell during fermentation	Very little diffusion of bad smell	Bad smell diffuses greatly	Bad smell diffuses greatly
Appearance of plant in operation	Good-looking because dust and rust are little	A lot of dust and rust appears on the machine	A lot of dust and rust appears on the machine

Treating dirty water by RA-X and by other type of machines



Capacity of treatment: 25m³ / a day (total volume after water adjustment)

Model I-12 width 12m x height 1.8m x length 50m

Main motor (for screw drive)	15kw(working hour 4hours/day)※
Drive motor (for wheel drive, lateral movement, bucket drive and up-down of screw)	3.9kw(working hour 4hours/day)
Blower motor (for ring blower 2.2kw x 3)	6.6kw(working hour 24hours/day)
Spray motor (for dirty water)	2.2kw(working hour 10min/day)

Estimated electricity fee

¥98,779/month calculated by TEPCO method from the above data.
(¥3,293 / a day)

Actual electricity charges

¥60,000(average per month)---

A hog raiser who raises 200 mother pigs from babies in North Kanto district.
He realized that discharge of dirty water for 0. (the length of the pit is 60m)

Consumption parts:

Screw durability 3,000 - 4,000 hours (that's depends)

※ Breakdown of working hours

Working hours of screw 3 hours and 30 minute per 50m length pit

Possible to ferment organic waste at high temperature
in cold area !



Throw-in back (water adjustment material) from the pit opening.

Shot at DONAN-Pig Farm on March 10, 2003

Supplied and constructed at the field of Hokkaido Agricultural Development Corporation (in Japan)

Vertical stirring



Utilization of wheat straw, rice straw and rice hulls.

Inclined stirring



Shot at NISHIMURA - Pig Farm on March 12, 2003



Picture showing running bucket



Throwing-in of raw material and material for water adjustment for example sawdust is possible and a large quantity of waste can be treated steadily.



Shot at KUROSU Farm on April , 2004



Throw-in any places in the pit.

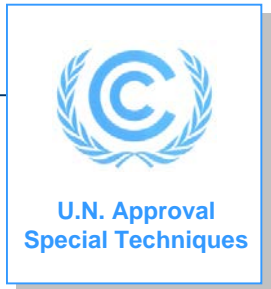
Picture showing sprayed dirty water



Spraying slurry of animal droppings and urine on the pile of compost under fermentation.



Shot at KUROSU Farm on April , 2004



Movement of stirring screw by crank motion.



Throw-in

Carry-out

As scattering of bad smell during stirring is very little and temperature loss is very limited, stable fermentation is maintained to make good compost products.

It is the most suitable for the large-scale management.



Shot at TSUKUBASHIGENKA Center on April , 2005