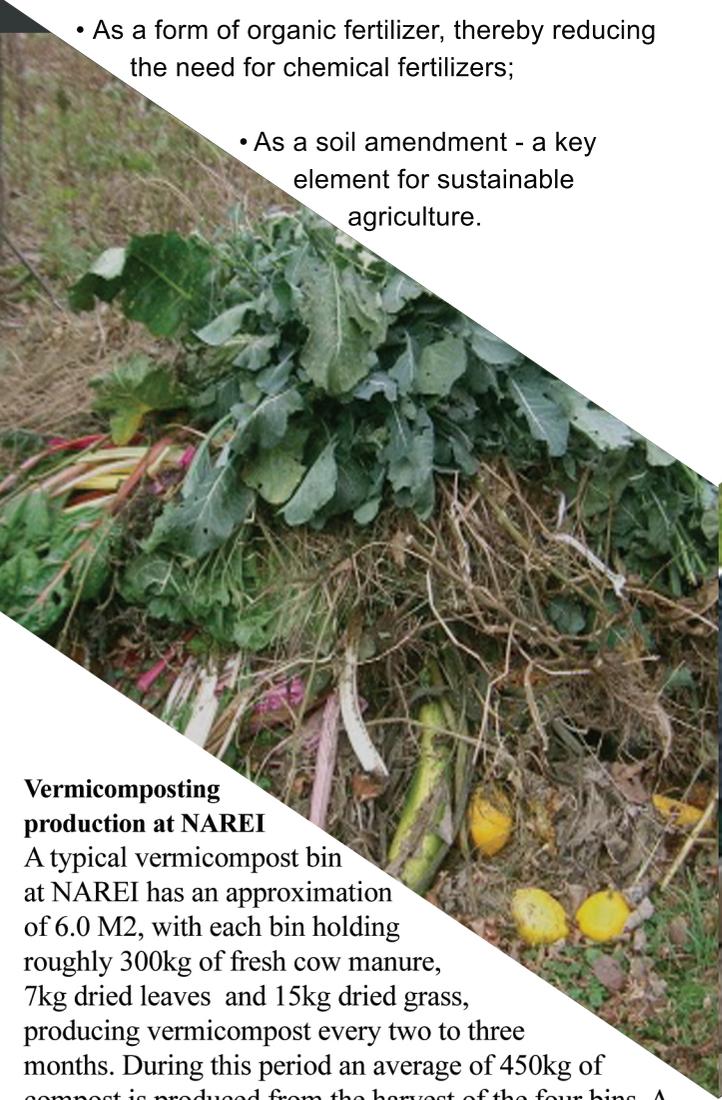


Possible uses for Vermicompost:

- As a seed starting boost that helps support the young plants' growth;
- As a form of organic fertilizer, thereby reducing the need for chemical fertilizers;
- As a soil amendment - a key element for sustainable agriculture.



Vermicomposting production at NAREI

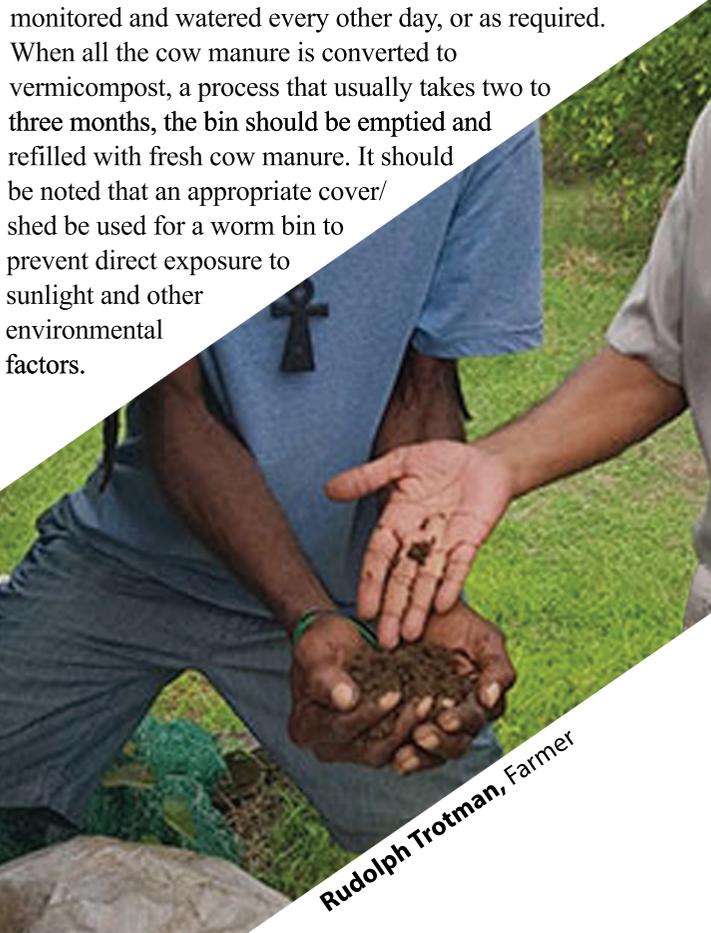
A typical vermicompost bin at NAREI has an approximation of 6.0 M2, with each bin holding roughly 300kg of fresh cow manure, 7kg dried leaves and 15kg dried grass, producing vermicompost every two to three months. During this period an average of 450kg of compost is produced from the harvest of the four bins. A farmer could safely utilize 1kg of the compost per plant.

"NAREI staff came and helped me set it up and then they would do follow up visits... I use to plant cash crop but then people start selling the mould (animal manure) so I just stop with the cash crop and started planting citrus but I start back with the cash crop last year when I got the first Vermicast and the plants are doing great. The vegetables are leafy and they look healthy."

Rudolph Trotman, Farmer

Vermicomposting is the way to go. The process:

Cow manure is placed in a 6-10" worm bin. On this a thin layer of dried leaves is placed. After this, the California Red worms are then placed on this layer, which is then followed by a layer of dried grass. The bins should be continuously monitored and watered every other day, or as required. When all the cow manure is converted to vermicompost, a process that usually takes two to three months, the bin should be emptied and refilled with fresh cow manure. It should be noted that an appropriate cover/shed be used for a worm bin to prevent direct exposure to sunlight and other environmental factors.



Rudolph Trotman, Farmer



NATIONAL AGRICULTURAL RESEARCH AND EXTENSION INSTITUTE



Effectiveness of Composting and Vermicomposting for Alternative Waste Management

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Composting of organic waste offers solutions to large amount of waste worldwide. It is a natural process of recycling decomposed organic materials into rich soil known as compost. Traditional composting of organic waste has been known for years, but new methods have become much more common in organic waste treatment and something that NAREI has been pushing for returns in Alternative Waste Management in Guyana



Relationship between Composting and Vermicomposting:

In Guyana, NAREI has been conducting experiments with one such composting technique call vermicomposting, a biotechnological process whereby earthworm converts food waste to a nutrient rich material, stimulate microbial activity, and at the same time, increase the rate of mineralization of the soil. It is rich in nutrients, poor in readily biodegradable carbon, and relatively free of any plant and human pathogens. Earthworms play a major role in breaking down the waste materials which forms vermicompost.

The use of compost and vermicompost for planting has been highlighted in agriculture as a beneficial medium for improving plant growth, yield and the maintenance of soil fertility and crop yield. It is one of the best organic media for planting as it's highly organic and contains no chemicals- making it environmentally friendly. However, there is a difference. Composting contains plant nutrients but is not characterized as a fertilizer, while, vermicomposting on the other hand is seen as ideal, as it leaves behind castings, a valuable type of fertilizer.

Advantages of Composting:

The amount of waste being generated daily is a cause for concern when it comes to land degradation (soil health, soil biodiversity and soil fertility). As such, composting is seen as a friendly way to reducing the amount of waste for landfills.

There are several advantages to using composting namely:-

- The decomposition of organic matter by microorganisms under controlled conditions
- The conversion of organic materials into humus, a rich nutrient material
- Safe for application to soils as it has rich nutrients for plants but are not characterized as fertilizers
- Recycles plant nutrients and supplies a variety of macro and micronutrients
- Improves soil structure, porosity and density
- Improves water holding capacity and contributes to carbon sequestration

Note: Healthy soils means there is less need for water, chemicals or pesticides

Advantages of Vermicomposting:

If you are looking to have growth and productivity of plants then vermicomposting is the way to go. Apart from the fact that it lends support to the quest in the greening of Guyana's agricultural sector, vermicomposting is critical to enhancing plant growth and actively suppresses disease in plants.

Among the many advantages, vermicomposting promotes:-

- Increased porosity and microbial activities in soil and improved water retention and aeration
- Decreases the amount of waste at landfills and in so doing benefits the environment
- Less cost of production
- Allows for the recycling of nutrients back into the soils
- It is a key element in sustainable agriculture



What are the nutrients Vermicompost provides?

Parameter	Quantity Obtained
pH	5.80
Organic content %	5.18
Total N %	0.91
Ca (mg/kg)	1.66
Mg (mg/kg)	10.55
K (mg/kg)	6.71
P (ppm)	102
Cu (ppm)	0.22
Mn (ppm)	40.6
Fe (ppm)	5.11
Zn (ppm)	28.8