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Title: Vermicomposting

Introduction

According to CalRecycle, a government sponsored group that deals with organic materials, describes vermicomposting as an activity in which a worm of some sort makes worm manure from their castings. This activity is essential especially to farmers because it is entirely organic and does not require industrial nor man labor (other than collecting the fresh “manure.) This manure that certain earthworms like Eisenia foetida and Lubricus rubellis create primarily helps plant growth. In this lab, we are creating a mock environment in which we deposit organic material so that these worms can create such manure, which we will collect after a certain period of time. Unfortunately this method is not renowned in current society, as farmers are deliberately suppressing the soil using manufacturing products. As a group, we felt that this way to create a more sufficient, and sustainable method of growing plants deserves its creditability and recognition.

Aim

To figure out how much vermicomposting the worms can make in 14 weeks.

Hypothesis

If we feed the worms more food than the worms will produce more compost.

Materials

* Blue Tub
* Newspaper
* Worms
* Water
* Scale (for weighing the food, amount of water, and compost)
* Various foods: bananas, apples, tea bags, and pizza crust.

Method:

We got a blue container so we could store the worms, newspaper, food, and waster in. The newspaper was shredded and used for the bedding. We weighed the worms and bedding that was stored in the container from previous experiments. The bedding and worms were put into the container. We put food and water in the container for the worms throughout the 14 weeks. Week one, we put in a tea bag that weighed 3.3g. Week two, we put in 197.6g of water. Week three, we put in a pizza crust and a tea bag with a combined weight of 50g and no water. Week four, we put in 220g of water, no food. Week five, we put in a banana that weighed 170g, no water. Week six, we added 206g of water, no food. Week seven we put in an apple that weighed 88.3g, no water. Week eight was skipped. Week nine, we added an apple that weighed 95.5g and 111g of water. Week ten was skipped. Week eleven, we added a banana that weighed 171.2g, no water. Week twelve was skipped. Week thirteen, we added a banana that weighed 197.5 and 181g of water. Week fourteen, we took everything out and weighed the newspaper, compost and food, and worms.

Results

There was 90g of worms in the beginning of the experiment. In the end of the experiment it decreased to 32.7g. The final weight of the compost was 134.8g. The initial weight of the bedding was 180g. The final weight of the bedding and food was 455.6g. The net weight of bedding and food was 1491.8g. The conversion efficiency rate was .09036, or 9%.

Other Groups

(Melissa, Bruce, Karsynn)

Initial Worm Weight: 35.5g

Final Worm Weight: not weighable

Final Weight of Bedding and Food: 405g

Net Weight of Bedding and Food: 2509.01g

Conversion Efficiency: 2.1%

(Kristin, Tricia, Cody, & Kaitlyn)

Initial Worm Weight: 182g Final Worm Weight: 85g

Final Compost Weight: 457.2g

Final Weight of Bedding and Food: 310g

Net Weight of Bedding and Food: 1213.8g

Conversion Efficiency: 37.98%

Conclusion

The hypothesis was not supported. We did not get the results we were expecting to get. The efficiency rate was low, 9%, compared to another group which had, 37.98%. But it was higher than a group that had 2.1%. I have concluded that the reason we did not get enough compost was because the worms that we found at the end of the experiment were all baby worms. Worms consume as much as their body weight, and deposit that same amount of weight. The smaller worms did not make as much compost as the longer and older ones would have done, for the reason that they do not weigh as much as the older ones. There were points of error in our experiment. There were several breaks in the experiment that we did not feed or water the worms. There were some holidays in the middle of school. None of us were at the school during those breaks. The consistency of watering and feeding the worms should have been monitored better. There could have been too much watered that was added. Another group did not add as much water and had a higher efficiency rate. The amount of watered added could have drowned some of the worms. There were a lot of fruit flies in our container, because of the bananas. The flies could have eaten some of the food that the worms needed to eat.

Work Cited

No Author. “Vermicomposting: Composting with Worms.” *CalRecycle.ca.gov.* No date of Publication. 05 May 2012.