# Vermicompost

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# Have you ever thought to yourself, What is vermicompost?

Vermicomposting is the breaking down of organic material through the use of worms, bacteria, and fungi. In nature, organic matter is decomposed through these organisms. By managing vermicomposting you are essentially speeding up mother nature's process of breaking down organic matter. The end product of vermicomposting is a substance called vermicompost or "worm castings". This is a nutrient rich organic substance that can be added to soil to increase its organic matter content and available nutrients.

# How does vermicompost work?

The system of vermicomposting works very simply. Once you establish the bin, add the worms and food scraps. The worms will eat the food and excrete the waste in the form of worm casts. This can be used as fertilizer for other plants. Collect the worm compost from the bottom bin once there is enough soil, but make sure there are no worms! This method will allow you to feed the top bin when the bottom bin collects all the compost. As the bottom bin's last contents are turned into compost, the worms will go back to the upper bin to find more food. The lower bin can then be emptied and you start the cycle all over again.

This is the very top layer where paper, food and worms are placed.

# Where is Vermicompost used?

Vermicompost can take place in gardens, farms, greenhouses, and even in backyards! It also takes place in the bins with different layers.

This picture shows the top bin with the green vegetables.

# Why is vermicompost used?

Vermicompost is used because it's one way to create good fertile soil to help plants grow. The worms will break down food and make good fertilizer. They are used in a bin with food that they break down which becomes fertilizer but can also be used in other things like aquaponics. It is also used to compost and recycle. For example, if you have a leftover peel from a fruit or vegetable, you can put it in the soil. After that, the worms make it fertile by composting it. There are different layers of soil in the bins and the leftover food is put at the top. The soil is composted, and at the bottom layer of the bin is where the fertile soil is.

This picture shows millipedes that also break down food to make fertile soil

# Who would use vermicompost?

Vermicompost is used by farmers, and regular people everyday. Vermicomposting is a non-thermophilic biological oxidation process (a process of gaining oxygen from the environment, without the use of heat) that involves earthworms and associated germs. People compost using the soil in their yards and worms (preferably red worms) to compost. These earthworms wiggle their way into the soil to eat rotting plants, dirt, food, and animal waste. The compost that was made turns into a fertilizer that can be used in yards, gardens, greenhouses, etc. Vermicomposting can be useful to everybody.

This shows the food being

raked to mix it up.

# What does vermicompost look like in the WMS greenhouse?

As you enter the WMS greenhouse you will see dozens of plants with fertile soil. From plants hanging on the ceiling to plants growing in water, vermicompost all contributes to them. Some worms are placed in the aquaponics to kill diseases in the water. The worms also make healthy soil for the plants by reusing paper and food scraps. Further in the back of the greenhouse you will find about four layers of bins filled with shredded paper, food, worms, and soil. The very top layer contains many food scraps, paper, and many worms. The layer below has less food and paper. The third layer includes a little soil and a lot of worms. The last layer is filled with a large amount of wet soil and some worms. To use this soil you must take out all the worms so it is safe to plant with.

# What did we do while in the greenhouse?

In the greenhouse, we go to the worm bin and place enough food for the worms. Then we would mix around the worms and food in the top layer. Ms. Kearney would then pick two kids to mix the soil, the person to mix would switch each week.. We all measured the food to get the right amount for worms, then we added it to the bin. We fed the worms with vegetable scraps and other foods. Any foods that contained acid would attract bugs, therefore no acidic food were used. We also saw the different layers of soil in the bins. The worms make the soil fertile. At the end, we got to see the millipedes and sprayed water on them and make sure they are doing well. We fed them food each time too.

# What measurements were taken?

We took measurements of how much food we put. This will tell us how much of the food was consumed on that day. We also took measurements of how much compost was produced.

# Summary- All our thoughts about vermicompost

Emily- I think that vermicompost is a good way of using worms in soil with food to make fertile soil.

Paige- I think that vermicompost is a very unique, smart way to create and collect good fertile soil to help other plants grow with the fertile soil.

Juliet- I think that vermicomposting is a significant way to recycle scraps and garbage into something new. It reuses trash to give healthy soil for plants and greatly impacts our environment.

Tamar- I think vermicomposting is an efficient way of composting and recycling what we do not use.

Paul- I think the vermicompost can save the world from pollution