

A very good effect of using vermicompost - besides the ones already mentioned - is that it attracts the burrowing earthworms which already exist in the soil. These are the ones adapted to the local conditions and they now get much better conditions for a continuing improvement of the soil. So you will continue to get better crop over the years.



Urban agriculture in Cuba



www.gaia-movement.org

THE GAIA MOVEMENT

BOOKLET NO 1

HOW TO:

GROW BETTER CROPS USING WORMS TO COMPOST KITCHEN WASTE



www.gaia-movement.org



Grow better crops using worms to compost kitchen waste

Idea

The idea is to make a simple system where kitchen waste and other kinds of organic materials are changed into good compost by earthworms - vermiculture. This compost can greatly improve the qualities of the soil and will give better crops. At the same time it reduces pollution of air and water.

Introduction

Kitchen wastes make up a big part of the solid wastes thrown out all over the World. Besides being expensive to remove the big amounts, the wastes creates many problems:

- using much space in landfills
- creating methane when decomposing. Methane is one of the greenhouse gasses contributing to warming of the Earth
- diseases spreading because of unhealthy conditions

One simple way to reduce these problems is to start using worms to transform the kitchen waste into good compost. This can be done locally where people live with no need of transporting to landfills or dumps. In Cuba they started this system at the end of the



Temperature

If it gets too warm the worms and the microorganisms can not function. This is when the temperature comes much over 30 degrees C. If it gets too cold the decomposing is very slow. You can regulate the temperature by adding more material - this will make it warmer, or reducing the height - this will make it cooler.

When is it finished:

After about 1 month the compost is ready. It will be black in colour, not very heavy and smell of humus (soil).

To separate the worms from the compost, stop watering two to three days. As it gets dry most of the worms will go to the bottom of the box and it is possible to take the good compost. Any worms in this compost can be removed by hand to be used again in the box.

How is it used:

The finished vermicompost can be used around any growing plants - flowers, vegetable garden or field. The more is used the better the plants will grow. It is good to mix it with the soil to avoid that it dries and blows away.





Place the worm box in a ventilated area in the shade. Start feeding the worms slowly at first using only vegetable waste and crushed eggshells. Do not add meat waste to avoid attracting rats.

The waste is spread out on top of the box and should be covered with leaves or grass.

When it is well functioning you start coming waste in only one half of it. After 1-2 months you change to the other half.

How to look after the vermicompost:

Rats

If there are rats in the area it is good to make sure that they do not get into the worm box. The boxes should then be covered and the sides solid.

Moisture

It is important that the material is kept moist but not too wet. If it is too dry the worms will dig deeper down and the waste will not be eaten. If it is too wet other microorganisms will take over and the heap start to smell of rot.

It is good to make the beds in the shade to avoid direct sunlight.

Normally the vermiculture will need to be watered every day - but not too much.



1980's. By 1992 they were producing 93,000 T of compost pr year which is used as fertiliser.

What do the worms do?

They eat the waste. In the worms there is an environment where conditions are superb for microorganisms to eat the waste. You can say the worms act as factories where the waste is changed. Normal composting takes many months. With worms it will only take about one month.

The parts leftover after passing through the worms are very good as compost and will give you better crops because they:

- are full of microorganisms which are good for the plants
- these microorganisms make nutrients available from the soil
- prevent harmful microorganisms from spreading so the plants get less diseases
- contain much humus - organic material which improves the soil so it can hold more water and nutrients. In India where vermicompost is spreading quickly some projects report using 50% less water for irrigation and doubling the harvest.
- binds the soil together so less damage - erosion - is done by heavy rains or winds





What kind of worms can be used?

- The surface worms which feed mostly on leaves and other plant material. They are normally red in colour. They are the ones used for vermicomposting.
- The other kind of earthworms are deep, burrowing worms which mostly eat soil. They are important for mixing the soils and making channels so air can come into the soil. They are normally grey and are not good for household vermicomposting.

Instruction - How to prepare vermicompost

Materials needed:

- Worms
- A place where the piles or boxes can be made. Best in the shade.
- Organic waste - that is vegetable and food leftovers, plant material, cow dung etc. If the pieces are big it is good to cut them to smaller pieces.
- To make sure air comes into the heap it is good to mix the waste with fibrous materials - grass, twigs etc.



The worm box:

The height should be 2 feet (60 cm). Any width and length. For a normal household 2 x 2 feet will be enough.

Any material can be used. It is good to make small holes at the bottom to let air into the box and for water to drain out.

It is possible to make vermicompost directly on the ground if you have no materials to build a box. This can give problems however if there are many rats.

It is also possible to make the system in many smaller containers like flower pots.

Place 3-4 inches (10 cm) of fibrous material in the bottom - straw, twigs, husk etc

The easiest way to start is to get some compost and worms from someone already making it. Spread it out on the fibrous material and cover with cow dung which has aged for at least one month. If there is no cow dung you can use normal garden compost.

It is good to add crushed egg shells as the worms needs this to make cocoons.

It is also possible to start your own production without vermicompost. You must then find the worms in the soil - best in an old garden with rich soil.

If you keep the temperature and moisture right after short time you will have enough worms to eat all the kitchen waste.

