

# Vermicompost and Vermiculture:

## Adding WORM CULTURE



**“Culturing of earthworms and their application for a variety of purposes is what is meant by Vermicomposting by vermi culture”.**

### **a) Selection of species:**

The epigeic species have been found to be useful for compost making and the most commonly used species are '*Eisenia foetida*', '*Perionyx excavatus*' and '*Eudrillius eugeni*'. These species are fast breeders and feed actively on organic matter high in nitrogen!



### **b) Base materials required:**



Crop residues ,tree leaves and animal dung are the the basic materials required.Agricultural wastes like sugarcane trash,weeds hedge cuttings ,saw dust, coir waste,paddy husk, cattle dung, effluent slurry, from bio-gas plant, excreta of sheep, horse , pig, poultry droppings (in small quantity) and vegetable wastes are ideal food for earth worms. City garbage or even biodegradable organic sludge, a waste product from ETP of any industry can also be used for feeding worms.

### c) Containers for culturing:



Earth worm culturing should be done under shelter to avoid direct sunlight and heavy downpour . Either brick lined pits , plastic tubs, wooden boxes ,earthen pots or even on surface of soil by making heap of organic matter ,culturing can be done.Size of container should be 1 m x 1 m x 0.3 m .In case of pit or heap method dimensions may be changed to convenience , however ,depth of pit or height of heap should not be more than 45 cms.

#### d) Preparation of bed :



Step by step method of preparation of wormiculture bed has to be followed for good results.

First step: Select a container or dig a pit of appropriate dimensions as mentioned above wherever compost is to be prepared.

Second step: Make a bed of 10 cm height using any of the base materials (coir waste, paddy husk, sugar cane trash etc>)collected. Give a layer of soil on it. Sprinkle water on it to get a moisture level of 40-45%.The bed should appear wet.

Third step: Mix the organic waste with cattle dung in equal quantity and pour appropriate quantity of water over it so as to make a homogenous mixture. Effluent slurry from bio-gas plant is best used for this .Keep this mixture for two weeks. During this period heating of substrate will take place. Give turning to the material 2-3 times at 4-5 days interval and transfer it on the layer of bedding prepared earlier.



'**Eisenia foetida**' species of vermi culture added to the bed prepared.



Adding the Worm culture



Fourth step: Introduce cocoons or worms (if culturing is done for the first time , it is advisable to introduce worms) in the bed at the rate of 2000 worms for 400 kgs of feed mix. as prepared in third step. Then the feed mix is to be spread uniformly on the culture bed .Add 5-10 % neem cake in the feed mix. Neem cake in small quantities has beneficial effect on the growth of worms.

Fifth step: Cover the bed with Gunny cloth .Sprinkle water over the cloth periodically to keep gunny cloth wet. The worms feed actively on organic matter and assimilate only 5-10 % and rest is excreted as loose granular mounds of vermicastings on the surface away from the feed source , Thus the worms will convert the feed mix into vermicastings in 60 days . The vermin compost once formed completely will give the smell of moist soil.

Sixth step: Take out the vermi compost and make a heap in sunlight on a plastic sheet . Keep for 1-2 hours .The worms will gather at the bottom of heap. Remove vermin compost on top and the worms settled down at the bottom can be carefully collected for use in the next batch of vermi composting.



Sieve the vermicast (fine granular materials)



Vermi wash from the compost



Finished product-Vermiwash collection & storage in containers of various sizes

### e)Precautions for compost making : Finished Product -vermicompost



1. Moisture level in the bed should not exceed 40-50%. Water logging in the bed leads to anaerobic condition and change in pH of medium. This hampers normal activities of worms leading to weight loss and

decline in worm biomass and population .

2. Temperature of bed should be within the range of 20-30 degree centigrade.
3. Worms should not be injured during handling .
4. Bed should be protected from predators like red ants, white ants, centipedes and others like toads,rats, cats , poultry birds and even dogs.
5. Frequent observation of culture bed is essential as acumaulationd of casts retards growth of worms.
6. Space is the criterion for grow th and estblishment of culture .Minimum space required is 2 square meter per 2000 worms with 30-45 cm thick bed.
7. Earth worms find it difficult to adopt themselves in new environments hence addition of inoculam as a bait from earlier habitat helps in early adaptation to new site of rearing.

### **Best composting tips:**

- 1.Mixture Of cattle ,sheep, and horse dung with vegetable wastes forms ideal feed for worms.
- 2.Addition of neem cake in small quantity enhances growth of worms.
3. Biogas slurry aged aerobically for 15 days enhances vermi composting process.