

6. Shallow bowls
7. Bucket
8. Watering can/pipe with hose nozzle
9. Gunny bags/sacks
10. Cattle dung

2.2 Custom Wooden Tub

A tub measuring 2m*1.5m*0.5m was made from Bluepine wood for vermicomposting kitchen wastes. A small drain hole with a diameter of 2 cm was made at the bottom end of the tub to collect vermiwash at the end of every harvesting season. The drain hole was plugged with cloth material to prevent leaching of vermicomposting constituents including the worms.

2.3 Red Wiggler Worms

About 1.5 kg of Red wigglers aka Tiger worms (*Eisenia fetida*) was acquired from National Soil Services Center, Thimphu Bhutan.

2.4 Procedure

2.4.1 Place tub/container inside a shed

- Place the tub/container on a raised platform to avoid burrowing insects like ants
- Preferably, place the tub/container at a slope using wooden pegs to drain out excess water through the drain hole and for the convenient collection of vermiwash at the end of vermicast harvest.

2.4.2 Prepare bedding

1. Place about 5 cm of shredded papers (or sawdust or husk)
2. Above the shredded papers, place 5 cm of sifted sand
3. Above the sand, place 5 cm of sifted garden soil/forest top soil
4. Sprinkle water after laying each bedding layer

Note: We avoided use of saw dust as the vermicast had brownish colouration which is not appealing to eyes.

2.4.3 Place worms

Place worms uniformly on the bedding

2.4.4 Feed worms

- Vegetable refuse and fruit peels are best worm food.
- Chop worm food into pieces so that it becomes easier for the worms to feed on
- Feed the worms by spraying worm food uniformly over the bedding
- Feed adequate amount of food once every week
- Add a layer of bedding each time the foods are placed
- Spray water after additional layer of bedding has been laid each time the worms are fed.

2.4.5 Foods to avoid

- Onion, garlic, oil, salt, vegetables or fruits with hard peel like potato peel, carrot peel and radish peel, pepper

Note: Over feeding worms is not advisable as it can invite unwanted pests. Remember to check for bad odour as a sign of over-feeding. Depending on the consumption, add or lower feeds for the worms.

2.4.6 Moisture organic heap inside the tub

- It is necessary to keep the layers moist but not to that extent that water begin to pool up.
- Check the layers periodically (once in 2-3 days)

2.5 Cover the tub

Worms prefer darker environment. Ensure that the tub/container is

properly covered with the help of cloths or gunny bags. Avoid solid lid as worms need air to breathe.

2.6 Insulating Vermicomposting set-up

We placed the vermicomposting set-up inside a nursery greenhouse to make up for the ideal temperature. The set-up could be kept anywhere warm like inside a cattle-shed or a in one of the corners of a house.

2.7 Harvesting vermicast

After checking the organic heap inside the tub/container for dark colouration which will normally take anywhere from 3-6 months, prepare to harvest vermicast.

- Stop spraying water for atleast a week before harvesting
- Stop feeding worm food for atleast a week or two before harvesting
- Scoop the vermicast from the tub (preferably in the presence of light so that the worms burrow down and avoid unintentional injuries during the harvest) remember to scoop 2-3 inches into the castings to avoid accidentally injuring the wigglers. You need to remove castings until the very bottom of the tub.
- Place the castings on a shallow bowl
- Wait for few minutes to let some earthworms that might have come with the castings to burrow down
- Work out the castings to remove worms and their eggs to place them back to the vermicomposting tub
- Sift the castings using soil sifter into a collection bowl
- Wash off the tub and collect the vermiwash placed below the drain hole of the vermicomposting tub
- Place the sorted-out worms in a container filled with bedding materials

Note: Sorting out worms and their eggs is time-consuming. We may need atleast 4-5 men to carry out sieving and sorting out of worms and their eggs.

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