

Method of Composting
and
Preparation of Vermicompost

NADEP METHOD OF COMPOSTING

It is an aerobic method of composting. The finished product is obtained through that process of composting within 90-120 days . Top soils are used in this system of composting which carry soil microbes which are responsible for decomposition process as the Cow dung does not contain these type of microbes. Moreover, it helps aeration with the compost materials. In this method minimum quantity of cattle dung is need.

Selection of site

- ❖ The site selected for the pit should be easily approachable for inspection.
- ❖ Pit should be at a comparatively higher level so that neither rain water gets into nor the water table rises and causes water stagnation in the pit during monsoon.
- ❖ It should be near the cattle shed and the source of water supply.
- ❖ It is a common site in the country that farm waste & cow dung are piled by the side of the road. Automobile exhausts containing lead get deposited in such compost. Hence compost pit should be located at a distance from the road or else compost containing toxic metal lead contaminates even food grain, affecting health of animals & human beings.

Construction of Tanks

With the help of bricks cemented tanks are constructed on the soil surface. These tanks should be located near cattle shed or on easily approachable farm sites.

Size of the tank should be 10'X6'X3' with 9" inch thick brick wall. For circulation of air, proper holes of 7" inches (preferably) are left on all the four sides of the tank wall. Plastering of inner-outer wall & floor of the tank should be done by dung and mud mixture.

Materials required

- ❖ Farm residues, refuses like weeds, grasses, leaves, sugarcane trash, stubbles and aal kind of wastes, stalks, roots, stems, prunings, stalk of green manuring crops, etc. 1400 to 1500kg.
- ❖ Cattle dung 90 to 100 kg (8-10 baskets)
- ❖ Dry sieved-soil 1750 kg (120 baskets) (urinated earth is more effective)
- ❖ Water –according to season (less during rains and in abundance during dry spells) 1500 to 2000 litres.

Method of filling the tank

Before filling the tank, slurry made of cow dung and water should be sprinkled on the floor and the wall

- **First layer:** Plant residues available on the farm are spread evenly in layers to a thickness of 6 inches (100 to 110kg)
- **Second layer:** Cattle dung or Gobargas-slurry, 4 to 5 kg in 125 to 150 litres of water on the first layer of the trash.

➤ **Third layer:** It consists of clean dry sieved soil (keeping apart stones, pebbles, glass plastic etc.) Then 50 to 60 kg (4 to 5 baskets) of soil are spread on moist layer of farm refuses sprinkling of water is repeated. The tank is filled in this way layer by layer and it is filled till the materials is 1½ ft. above the brick level. A hut like shape may be given at the top. The whole tank is to be filled within 1 or 2 days. Eleven to twelve layers are required for filling the tank to its capacity. In case cattle dung is not available in desired quantity, collection of same is done for 8-10 days under a shade by covering it with a light layer of soil. As an alternative practice, tank can be filled 1/3 or ½ of its capacity in parts.

Full tank should be covered and sealed by 3 inch layer of soil (300 to 400 kg). It should be pasted with a mixture of dung and soil. Cracks should not be allowed to develop on the heaps, to check gas leakages, for that the pasting can be repeated.

Second filling

After 15 to 20 days the fresh contracts and becomes more compact and goes down in the tank by 8-9 inches. The procedure described in the first filling is repeated and again sealed and pasted with mud and dung. It takes about 3 to 4 months in compost making by NADEP method. In order to maintain 15 to 20 % moisture, the compost is sprinkled with cattle dung and water. This helps in conservation of the nutrients.

Content of Nutrients

Nitrogen (N)	:	0.5 to 1.5%
Phosphate (P)	:	0.5 to 0.9%
Potash (K)	:	1.2 to 1.4%

Along with other macro and micro-nutrients.

Vermicompost

Vermicompost is nothing but the excreta of earthworms which is rich in humus. We can rear earthworms artificially in a brick tank or near the stem/trunk of trees (specially horticultural trees). By feeding these earthworms with bio-mass and watering property the food (bio-mass) of earthworms, we can produce the required quantities of Vermicompost.

Advantage of Vermicompost

- ✓ Vermicompost is rich in all essential plant nutrients.
- ✓ Provides excellent effect on overall plant growth, encourages the growth of new shoots/leaves and improves the quality and self life of the produce.
- ✓ Vermicompost is free flowing, easy to apply, handle and store and does not have bad odour.
- ✓ It improves soil structure, texture, aeration, water holding capacity & prevent soil erosion.
- ✓ Vermicompost is rich in beneficial micro-flora such N-fixers, P-solubilizers, cellulose decomposing micro-flora, etc.

Advantage of Vermicompost

- ✓ Vermicompost contains earthworm cocoons and increases the population and activity of earthworm in the soil.
- ✓ It neutralizes the Soil pH.
- ✓ It prevents nutrient losses and increases the use efficiency of chemical fertilizers.
- ✓ Vermicompost is free from pathogens, toxic elements, weed seeds, etc.
- ✓ Vermicompost minimizes the incidence of pest and diseases.
- ✓ Vermicompost enhances the decomposition of organic matter in soil.
- ✓ Vermicompost contains valuable vitamins, enzymes and hormones like auxins, gibberellins etc.

Nutrient content of Vermicompost

Nitrogen	:	1.5	-	2.5%
Phosphorus	:	0.9	-	1.7%
Potash	:	1.5	-	2.4%
Calcium	:	0.5	-	1.0%
Magnesium	:	0.2	-	0.3%
Sulphur	:	0.4	-	0.5%

And other micro-nutrients with vitamins, enzymes and hormones.

Materials for preparation of Vermicompost

Any types of Bio-degradable wastes –

- Crop residues
- weed bio-mass
- Vegetable waste
- Leaf litter
- Hotel refuse
- Wastes from Agro-Industries
- Bio-degradable portion of urban and rural wastes

Efficient Species

Eisenia	foetida
Amyanthes	differigens
Eudrillus	eugineae

Vermiwash → a plant growth regulator

Vermiwash is a liquid plant growth regulator which contains high amount of enzymes, vitamins and hormones like auxins, gibberellins etc. along with macro and micro-nutrients.

Method of preparation:

- Take one big bucket and one mug.
- Set up one stopcock on the lower most part of the bucket.
- Put a layer of broken brick pieces of stones having thickness of 10-15 cm in the bucket.
- Over this layer put another layer of sand having thickness of 10-15 cm.
- Then put a layer partially decomposed cow dung having 30-45 cm thickness over it.
- Then put another layer of soil having 2-3 cm thickness.
- Now open the stop cock of the bucket and water the materials taken in the bucket.

Method of preparation:

- Then put 100-200 nos. of earthworms in the bucket.
- After that, a layer of paddy straw having 6 cm thickness is given.
- Now open the stopcock of the bucket and spray water regularly for a period of 7-8 days.
- After 10 days the liquid Vermiwash will be produced in the bucket.
- Hang one pot with a bottom hole over the bucket in such a way so that water falls drop by drop.
- Every day 4-5 litres of water is to be poured in the hanging pot.
- Keep another pot below the stopcock to collect the Vermiwash. Everyday 3-4 litres of liquid Vermiwash can be collected.

Application

- ✓ Mix 1 litre of vermiwash with 7-10 litres of water and spray the solution in the leaf (upper and lower side) in the evening at the growing stage of the crop.
- ✓ Mix 1 litre of vermiwash with 1 litre of cow urine and then add 10 litres of water to the vermiurine solution and mix thoroughly and keep it over night before spraying. 50 to 60 litres of such solution are to be sprayed in one bigha of land to control various crop diseases.