



## Vermicomposting in Agriculture



**DAY - National Rural Livelihood Mission**

## Vermicomposting: A method of preparing enriched compost with earthworms



It is one of the easiest methods to recycle agricultural wastes and to produce quality compost.

Earthworms consume cow dung and crop residues and produce manure.

The vermicompost is rich in nutrients, growth promoting substances, and beneficial soil microbes.

Vermicompost enriches soil quality by improving soil structure for better root growth and water holding capacity. It is highly useful for growing seedlings in nurseries and for crop production in the main field.



Red earthworm (*Eisenia foetida*) is preferred because of its high multiplication rate and thereby converts the organic matter into vermicompost within 45-50 days. Since it is a surface feeder it converts organic materials into vermicompost from top.





## Bed Method

**PROCESS:** Composting is done on the pucca / kachcha floor. Select a shady and level place. Clean it. Prepare bed of 6' X 2' X 2' size. Spread green leaves or agricultural wastes to a height of 6". On that spread fresh cow dung or 2- or 3-week-old cow dung to a height of about 18". Sprinkle water on the prepared bed. Inoculate on the bed one kg of earthworm (1kg will have 1000 to 1500 worms). Cover the bed with hay or dry leaves or gunny bag for protection from predators. Lining the beds with bricks will give some protection against rainwater. Keep the beds moist by sprinkling water every day. Vermi compost will be ready in 60-70 days. Stop sprinkling 4 or 5 days before harvesting.

**HARVEST:** Start harvesting from top of the bed by scraping. Collect the vermicast and sieve it using 3 mm sieve (used by construction workers to sieve sand). On the sieve, the earthworms, and cocoons (eggs) are retained. They are released to the next batch of the vermicompost bed. The sieved vermicompost must be shade dried and bagged for storage. This size of bed may yield around 400 to 500 kg.



Spreading Farm Waste



Applying Cow dung



Dry or fresh cow dung



Beds are regularly kept moist



After 60 days vermicast is ready



Vermi compost sieved



## Pit method

Composting is done in the cemented pits of size 5x5x3 feet. The unit is covered with thatch grass or any other locally available materials. This method is not preferred due to poor aeration, water logging at bottom, and more cost of production



A fine worm cast is rich in N P K besides other nutrients. Nutrients in vermicompost are in readily available form and are released within a month of application.

### Nutrient Analysis of Vermicompost:

Parameters	Content
pH	6.8
Organic Carbon %	11.88
Organic Matter %	20.46
C/N ratio	11.64
Available Nitrogen %	0.5
Available Phosphate %	0.3
Available Potash %	0.24
Calcium %	0.17
Magnesium %	0.06

### Advantages of Vermicompost:

- Efficient conversion of organic wastes/ crop/ animal residues.
- It is a stable and enriched soil conditioner.
- Helps in reducing population of disease-causing microbes.
- Helps in reducing the toxicity of heavy metals in soil.
- It is economically viable and environmentally safe nutrient supplement for organic food production.
- It is an easily adoptable low-cost technology.

### Dosage

Crops	Dose
Field crops	2 T/ acre
Fruit Crops	3 to 5 kg/plant
Pots	100 to 200 gm/ pot