MAKING VERMICOMPOST: First Steps

1. What materials are required to start a vermicompost?

Material	Quantity
Cement ring ~90 cm diameter, ~30 cm height(or pit or walled enclosure)	1
Polythene sheet (big enough to cover the bottom of the cement ring)	1
Dry organic wastes (DOW)	50 kg
Rock phosphate (RP)	15 kg
Earthworms (EW)	500-750 worms
Water (W)	5 L every three days
Ratio of DOW : CS : RP : EW : W	5 : 1 : 5 : 0 : 2 : 50-75 : 0.5

2. What are good sources of useable organic waste?

Vermicompost can be prepared from all sorts of organic residues. Examples:

- Agricultural residues
  - dry organic wastes (like sorghum straw, rice straw after feeding cattle, dry leaves, pigeonpea residues, groundnut husk, and wheat husk.)
  - waste vegetables
  - soybean residues
  - weeds (particularly Parthenium Hysterophorus, also called Vayyaribhama or Pander full or Congress weed, before flowering)
  - sugarcane trash
- Sericultural residues from silk production
- Animal manures
- Dairy and poultry wastes
- Food industry wastes
- Municipal solid wastes
- Biogas sludge
- Bagasse from sugarcane factories

3. What worms are good to use?

Use the non-burrowing types (Eisenia spp, Eudrilis spp), available in local markets. They are **red or purple**, **live on the soil surface** and help digest 90% organic waste materials.

Don't use the pale-coloured ones that live inside the soil and are generally seen in rice fields. These are the burrowing types (Pertima spp), which are not used for vermicomposting since they eat 90% soil.

4. What are good, suitable containers or places to start at vermicompost?

Vermicompost can be prepared in different places/containers in a shady area. Some suggested places include:

ABOVE GROUND:

- In cement rings (~90 cm diameter, ~30 cm height)
- In an enclosure with a wall (1 meter high) made with soil and rocks/bricks/cement

The commercial model consists of four chambers enclosed by wall (3 feet high, 5 feet width, total of 15 feet length). The walls made up of different materials like

normal bricks, hallow bricks, shabaz stones, asbestos sheets, locally available rocks etc. This model contains partition walls with small holes to facilitate the easy movement of earthworms from one chamber to another. Excess water can be collected by providing an outlet at one corner of each chamber. This technology reduces labor cost and saves water as well as time.

- On the floor in a heap

BELOW GROUND:

- In pits (up to 1 meter deep)

MAKING VERMICOMPOST: Method (13 Steps)

*** Note: The same procedure can be followed using any container or place.*

Step 1: Cover the bottom of the cement ring with a polythene sheet. (Or use the sheet to cover the ground of the area you're using).

Step 2: Spread a layer (15-20 cms) of organic waste on top of the sheet.

Step 3: Sprinkle rock phosphate on top of the organic material (2kgs).

Step 4: Prepare cowdung slurry (15kgs) and add the slurry as a layer on top of the mixture.

Step 5: Fill the ring completely and evenly with the layered material.

Step 6: Paste cowdung or soil over the top of the material.

Step 7: Allow the material to decompose for 20 days. After 20 days, put the earthworms on top. They will find the cracks and enter the material.

Step 8: Cover the ring with wire mesh or gunny bags to prevent birds from eating the worms.

Step 9: Sprinkle water over the whole mixture at 3-day intervals for 2 months, to maintain adequate moisture and body temperature of the worms.

**** Note: when the compost is ready, it is black, quite lightweight and has a pleasant, earthy smell.***

Step 10: After 2 months, (or when the compost is ready), remove the ring and heap the material in a cone shape on the floor.

Leave the heap undisturbed for 2-3 hours, to let the worms move slowly to the bottom.

Step 11: Separate the upper portion of the heap.

Step 12: Sieve the lower portion of the heap to separate the worms. They can be used again for preparation of more vermicompost.

Step 13: Pack the compost in bags and store them in a cool place.

AKING VERMICOMPOST: More Information

1. How long before the organic material can be used as fertilizer?

Vermicompost is ready in **2 to 2.5 months**. When it's ready, it's black, lightweight and has no bad smell.

2. What are the additional precautions?

- Use only plant materials (such as vegetable peelings, leaves or grass)
- Remove glass, metal and plastic materials from the organic material
- Protect against birds by covering the rings with wire or plastic mesh
- Sprinkle water regularly and maintain moisture levels
- Prepare compost in the shade to protect it from sun and rain.

USING VERMICOMPOST

Which crops should vermicompost be used on?

Vermicompost can be used for all crops (agricultural, horticultural, ornamental and vegetable) at any stage of the crop development.

When and how should vermicompost be applied?

- **Agricultural Crops**: apply vermicompost by broadcasting when the seedlings are 12-15 cms in height. Irrigate the field(s).
- **Flowers, Vegetables and Fruit Trees**: apply vermicompost around the base of the plant, at any stage of development, and cover with soil. Water regularly.

Quantity: How much is necessary to use?

- General Agricultural Use: 3-4 tonnes ha-1
- Fruit Trees: 5-10 kg per tree
- Vegetables: 3-4 tonnes ha-1
- Flowers: 500-750 kg ha-1

SUPPLIES

1. What are the costs?

Costs for are quite low. Examples are as follows:

Rock Phosphate: 2 Rupees per kg
Worms: 50 Rupees per kg

** Note: these are only examples of prices in India, noted in 2003, and are subject to change.*

2. Where can the products be obtained or purchased?

WORMS: The non-burrowing worms are often found in local markets.

ROCK PHOSPHATE: Is available with local fertilizer dealers.

FINISHED VERMICOMPOST:
The **Development of Women and Child in Rural Areas** (**DWACRA**) groups are preparing vermicompost for crops and for sale in the Adarsha Watershed in Kothapally, Andhra Pradesh, India.

Vermicompost is also available through the **International Crop Research Institute for the Semi-Arid Tropics** (**ICRISAT**) in Patancheru, India, near Hyderabad in Andhra Pradesh. For more information, please ask **Dr.S.P.Wani**, Principal Scientist, Regional Theme Coordinator, ICRISAT, Patancheru Theme Coordinator.