Earthworm is farmer’s friend since ancient time. The earthworm eats the half rot organic material and converts it into good quality manure. This also helps in desired increase in number of algae, protozoan and actinomycetis etc.25-30 year’s earlier, earthworm was found in abundance in soil but today, earthworm is found in gardens and ponds. Continuously decreasing number of earthworm has caused reduction in soil fertility. Probably, this is the reason why people is remembering earthworm today for organic and sustainable agriculture.

Objective of Wormi-compost

- Conversion of dung and waste material in to manure.
- Reduction in use of chemical fertilizer.
- Maintain the soil fertility.
- Increase in yield by removing stagnation in crop yield.
- Improvement in quality of product.
- Reduce soil erosion and increase ground water level.v
- Reduction in unemployment.
- Increase in micro-organism found in soil.
- Increase in wqater retention capacity of the soil.
- Reduction in unemployment.
- Increase in micro-organism found in soil.
- Increase in wqater retention capacity of the soil.

Classification

Approximately 4000 species of earthworm is found in the world of which 3800 is found in water and only 200 species lives in soil. In India, approximately 500 species are found. According to heir origin and development, earthworm is placed in high invertebrate group of which phylum is Annelida, class- Oligocheta and order is Linicholi.

Mainly earthworms are of three types:

- Epizoic- This is found on upper layer of the earth.
- Anisic- This is found in middle layer of the earth.
- Endozoic-This is found in deep layer of the earth.

All the species of earthworm found in the world is useful for the environment. 200 species, found in earth, contributes significantly to make the soil live but there is lack of earthworm or no earthworm in the earth. Those species of earthworm should be selected for preparation of wormi compost which can easily eat dung, grasses and leaves of the plant and convert them in to manure. Following species of the earthworm can be used for preparation of wormi compost.

Wormi compost in Organic Farming

SN	Family	Genus	Species
1	Utilidi	Lumbrius	Rubellus
		Lubricidi	Icenia
2	Lubricidi	Icenia	Fotida

		Icenia	Anderi
3	Megascolsidi	Parionix	Escactis
		Lampito	Moriti
4	Molilogastugy	Dravida	Villasi

Above mentioned 7 types of earthworm can be used in preparation of manure but according to the capacity of manure preparation and growth and capacity to bear adverse conditions, mainly 2 species of earthworm Icenia fotida and Udilus ugini ha been found the best for making manure.

- **Udilus ugini**
  This species is mostly used in South India. Its characteristics are that it can bear lower temperature as well as high temperature in shady conditions. This is more active in night. The color of this earthworm is reddish, violet or similar to animal flesh. Its length is 4-14 cm and diameter is 5-8 mm. It becomes adult in 40 days and maximum age is 3 years. This can form 1-4 cocoons at an interval of 3 days for 46 days in favorable conditions.1-5 earthworm comes out from 1 cocoon.
- **Icenia fotida**
  Mostly this species is being used for making manure. This is also known as Red Worm. This is red, brown or violet in color and colored strips are seen on its posterior part. Its length is 4-13 cm and diameter is 5-8 mm. This species is combative (hard worker) in nature. As hence their production capacity is more and their maintenance is easy. An adult earthworm weighs around 1-2 gram. It attains maturity after 55 days of coming out of cocoon and starts formation of cocoon. It makes cocoon in 3 days which develops into earthworm after hatching in 24 days.

Technology of Wormi Compost Production

Following point is to be taken care in production of wormi compost:

- **Site Selection**
  Selection of site should be such that there is no rain water logging. Fresh and clean water should be available nearby the site so that organic matter should be kept moist. Since, keeping an eye is essential, it is better to do this work near home.
- **Selection of Earthworm Species**
  For production of manure, select those species of earthworm which has the capacity to eat more organic material, can bear seasonal variations and have good reproductive capacity.
- **Selection of Organic waste**
  Sufficient organic material such as dung, green matter, leaves of tree should be available in abundance at low price at the place where the work is to be done.
- **Storage Arrangement**
  Availability of shady shed is essential for storage at commercial level so that manure produced can be stored at appropriate moisture level because deficiency of moisture in wormi compost and when it becomes dry, the quality of the manure is adversely affected.

- **Prevention from Enemies**
  There are many enemies of earthworm such as human (fishing), snake, frog, lizards, birds. All these animals eat earthworm. Termite and red ant also cause harm to earthworm. Hence, all out efforts should be made to prevent the earthworm from such harms.
- **Use of Manure produced**
  Plan should be prepared in advance as to where the manure, so produced, will be utilized. If it is to be used in own field, prepare the plan accordingly. If it is to be sold in the market, suitable strategy for marketing arrangement and arrangement for sale of red worm is essential.

Construction of structure for production unit

A permanent structure of 12x20 ft is constructed for production of 50-75 tons wormi compost per annum on which a shed of 15x25 ft is constructed to maintain shade and rain water should not enter the shed. A 2 ft high wall is to be constructed around the platform. It is essential to put sieves on the wall so that the earthworm can be saved from their enemies. A door is also essential to enter which can be open as per requirement.

Construction of Bed

On the constructed platform, 3 beds of 3x18 ft and ft thick sand or 1-2 ft thick grass over the sand should be placed. Then after, 2ft wide,1.5 ft high bed of dung and other organic waste material should be placed.

Use of Red Worm

In 3 beds, approximately 18-20 quintal organic waste is used. Thus, in a plot of 2x15x18 ft, approximately 6-7 quintal dung and other material is used and 25-30 kg red worm is put in it which eats the matter of the plot within month. In this way, 75 kg red worm is capable of converting 20 quintal dung and other matters used in 3 beds. Red worm eats food equivalent to their body weight. Hence, quantity of manure produced can be estimated on the basis of quantity of red worm. Quantity of manure produced can not be estimated on the basis of size of the platform. Quantity of manure production also depends on the quantity of earthworm and its management.

What is the raw material used for production of wormi compost?

- Dung of different animals, excretory material of sheep, goat and horse and waste material of poultry farm.
- Stems and leaves of the plant, weed residue, rotten leaves of the gardens, bagasse etc.
- Saw dust, bark, old cotton clothes, paper, banana leaves and kitchen waste.
- Slurry of bio gas plant and waste of food processing units

Precaution

- Turn the bed ups and down every week with the hands so that the dung is turned and air circulation is maintained so that the temperature of the bed does not rise.

- Never use fresh dung because fresh dung is hot. It may cause death of earthworm.
- Always maintain 35-40% moisture in the bed. For this, sprinkle water on it according to the season. In rainy season, requirement of water spray is less. In winter, sprinkle water in 2nd/3rd day but sprinkle water every day in the summer.
- Sieves should be placed around the platform for protection of earthworm from snakes, frogs and lizards and use neem soup around the platform to protect earthworm from termites and ant.
- Do not allow to vary temperature of bed from 8-30 degree Celsius. The earthworms are active at 15-25 degree Celsius and manure is produced early.
- Enough air circulation should be maintained but there should be least light.

Quantity of wormi compost used

SN	Name of the Crop	Wormi compost(Tons per Acre)
1	Pulses and Food grain crop	2 tons before sowing
2	Oilseed crop	3 tons before sowing
3	Spices and Vegetable crop	4 tons before sowing
4	Flowers	5 tons before sowing
5	Fruits crops at the time of planting	5 kg per tree
6	In vase	10 kg of the weight of soil
7	In lawn	02 kg per sq. meter