VERMICOMPOSTING

Vermi-technology is a process by which all types of biodegradable wastes such as farm wastes, kitchen wastes, market wastes, bio wastes of agro-based industries, livestock wastes etc. are converted to nutrient rich vermin compost by using earthworms as biological agents. Vermi compost contains major and minor nutrients in plant-available forms, enzymes, vitamins and plant growth hormones.

Species suitable: Eudrillus eugineae has been identified as the best species of earthworm for vermi-technology under Kerala conditions.

Vermi composting of farm wastes

Pits of size 2.5 m length, 1 m breadth and 0.3 m depth are taken in thatched sheds with sides left open. The bottom and sides of the pit are made hard by compacting with a wooden mallet. At the bottom of the pit, a layer of coconut husk is spread with the concave side upward to ensure drainage of excess water and for proper aeration. The husk is moistened and above this, bio waste mixed with cowdung in the ratio of 8:1 is spread up to a height of 30 cm above the ground level and water is sprinkled daily. After the partial decomposition of wastes for 7 to 10 days, the worms are introduced @ 500 to 1000 numbers per pit. The pit is covered with coconut fronds. Moisture is maintained at 40 to 50 per cent. When the compost is ready, it is removed from the pit along with the worms and heaped in shade with ample light. The worms will move to bottom of the heap. After one or two days the compost from the top of the heap is removed. Put back the un-decomposed residues and worms to the pit for further composting as described above. The vermi compost produced has an average nutrient status of 1.5%, N, 0.4% P2O5 and 1.8% K2O with pH ranging from 7.0 to 8.0. The nutrient level will vary with the type of material used for composting.

Precautions

1. The composting area should be provided with sufficient shade to protect from direct sunlight.
2. Adequate moisture level should be maintained by sprinkling water whenever necessary.
3. Take preventive measures to ward off predatory birds, ants or rats.

Depending on the extent of weathering of leaves used for composting, 70 per cent of the material will be composted within a period of 60-75 days. At this stage, watering should be stopped to facilitate separation of worms from the compost. Compost can be collected from the top layers, which can be sieved and dried under shade. Earthworms aggregated at the bottom layers can be collected and used for further vermicomposting.

Vermicomposting from coconut leaves

Weathered coconut leaves can be converted into good quality vermi compost in a period of three months with help of earthworm, Eudrillus sp. On an average, 6-8 tonnes of leaves will be available from a well-managed coconut garden, which will yield 4-5 tonnes of vermi compost with about 1.2, 0.1 and 0.5% N, P2O5, K2O respectively.

Vermicomposting of household wastes

A wooden box of 45 x 30 x 45 cm or an earthen/plastic container with broad base and drainage holes should be taken. Keep a plastic sheet with small holes at the bottom of the box. Add a layer of soil of 3 cm depth and a layer of coconut fibre of 5 cm depth above it for draining of excess moisture. Add a thin layer of compost and worms above it. About 250 worms are sufficient for the box. Spread daily vegetable wastes in layers. Cover the top of the box with a piece of sac to provide dim light inside the box. When the box is full, keep the box without disturbance for a week. When the compost is ready, keep the box outside in the open for 2-3 hours so that the worms come down to the lower fibre layer. Remove compost from the top, dry and sieve. The vermi compost produced has an average nutrient status of 1.8 % N, 1.9 % P2O5 and 1.6 % K2O, but composition will vary with the substrate used.