

This should be left for 10-15 days for partial decomposition. This will serve as feed for earthworms. One or two vermicompost tanks of size 10' length, 5' width and 3' height have to be constructed with bricks and covered with a thatched or tiled roof. Later fill each tank with 2-2.5 ton of partially decomposed residue having 30-40% moisture. Mixed culture of earthworms (*Eudrillus eugineae*, *Eisenia foetida* and *Perionyx excavatus*) in juvenile stage @ 2 kg/MT residue is released into the tanks. Water is sprinkled once in 2-3 days to maintain 30-40% moisture. Cover with coconut fronds or green leaves to prevent from drying and leave undisturbed at least 2 weeks.



Perionyx excavatus



Eisenia foetida



Eudrillus eugineae

Worms start depositing brown to black coloured vermicasts on the top of the feed in a few days. Once the vermicast is detected, watering is stopped for drying and for easy collection of vermicasts. The Vermicasts is harvested from each trench by scrapping the top layer for 6" with the help of a garden rake after every 2-3 weeks. By 60-70 days, the earthworms will convert the entire residue into vermicasts and new feed can be added. Harvest the left over vermicompost and sieve through wire mesh to separate earthworms. It is possible to harvest 4-5 tons of vermicompost annually from one tank.

It is possible to harvest 5-6 tons of vermicompost each time from two such tanks. The final product contains 1.9-2.0 % N, 0.6-0.9 % P and 1.0-1.5% K besides various micronutrients and micro-organisms.

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COMPOSTING AND VERMICOMPOSTING THROUGH RECYCLING OF SERICULTURAL FARM RESIDUE



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About 12-15 MT of Sericultural farm residue comprising silkworm litter, leftover mulberry leaves, soft twigs, weeds etc. are being generated for every one hectare of mulberry garden annually, which have tremendous manurial value of nitrogen (280-300 kg) phosphorus (90-100 kg) and potash (150-200 kg) as well as micronutrients like iron, zinc, copper etc. This huge quantity of biodegradable farm residue needs to be recycled by using composting and vermicomposting technologies for sustainable mulberry production.

Compost preparation

Composting is a process of conversion of biodegradable organic residue into stable product called humus through decomposition, in the presence of various microorganisms, which needs to be done scientifically.



A compost pit or tank of 15' length, 5' width and 3' depth or height should be prepared on a slightly elevated area. At the end of rearing, silkworm litter, left over leaves, chopped mulberry twigs and weeds are collected and spread layer by layer in the pit. For each and every layer of residue fresh cow dung/biogas spent slurry should be applied. To improve the quality of the compost, for every ton of residue 20 kg rock phosphate, 100-150 g lime and 5-6 kg ash can be added. When the pit is filled to a height of 30-40 cm above the ground level, the compost pit should be closed and plastered with a mixer of mud and cow dung slurry and be allowed for decomposition. It is essential to maintain the moisture by sprinkling with water from time to time. A consortium of lignocellulose decomposing fungi like *Aspergillus awamori*/*Trichoderma*/*Pleurotus* sp. @ 1 kg/MT of seri farm residue may be added to speed up the decomposing process. Thatch the shed to protect the compost pit from rain and direct sunlight.

By 5-6 months all the organic residue gets decomposed and good quality compost (2.0-2.4 % N, 0.9-1.2 % P and 1.0-1.5 % K and micronutrients and also microflora) can be obtained. For better result it is suggested to turn the residues upside down at least 2-3 times. It is possible to harvest 4-5 tons of compost annually from one such compost pit or tank.

Vermicompost preparation

Vermicomposting is a rapid method of conversion of organic residue into nutrient rich organic manure using earthworms. In this process the manure will be ready by two to three months. Organic residue comprising of silkworm litter, bed refuse and farm weeds etc., are kept in an open pit/trench and drenched with sufficient amount of water mixed with cow dung or biogas spent slurry.

