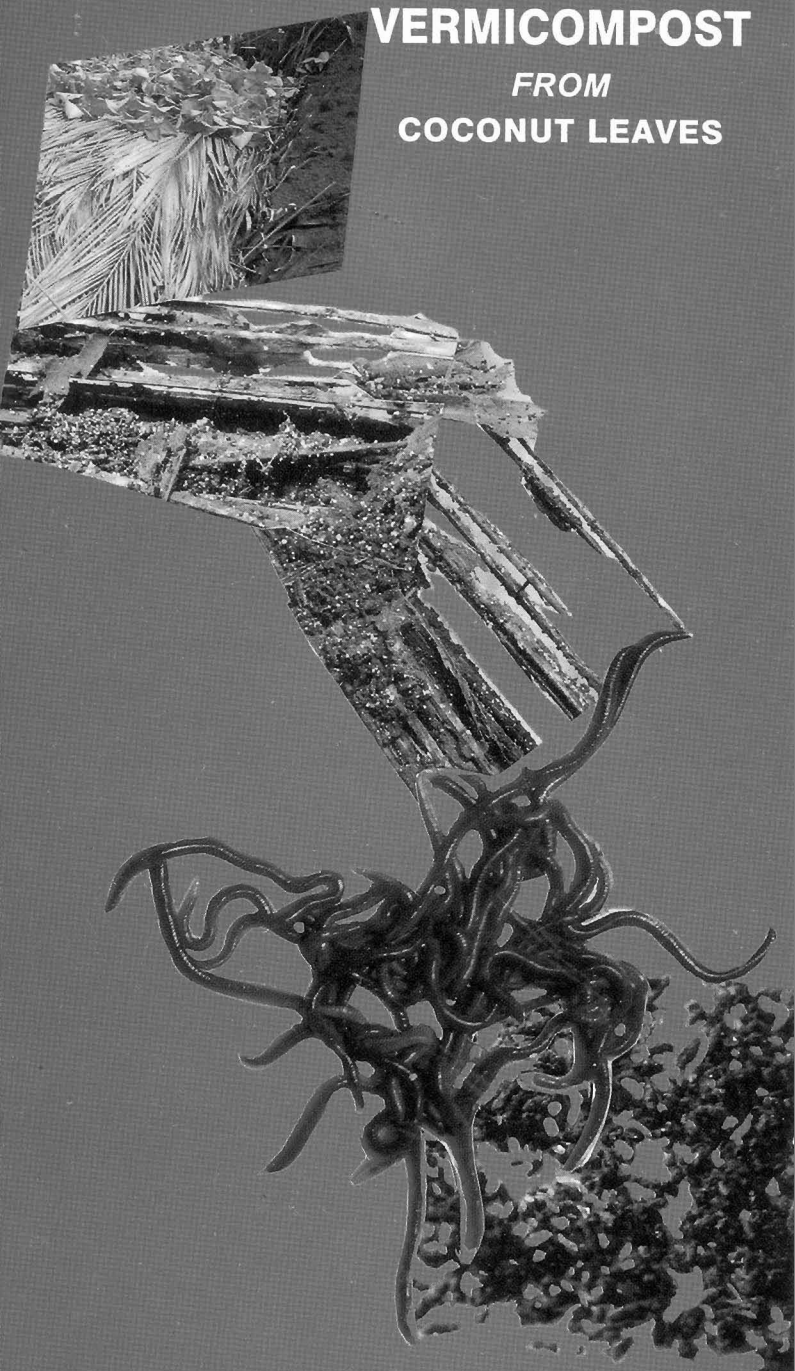


# VERMICOMPOST

*FROM*

**COCONUT LEAVES**



**CENTRAL PLANTATION CROPS RESEARCH INSTITUTE**  
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# VERMICOMPOST FROM COCONUT LEAVES

## Introduction

Application of organic manures is a vital component of sustainable crop production practices. Therefore it is necessary to make full use of natural resources available. It is estimated that on an average six to eight tonnes of dry coconut leaves are available from one hectare of well



*Coconut leaves collected for vermicompost preparation*

managed coconut garden. A considerable part of nutrient requirement of coconut palms can be met by converting these leaves into compost and recycling the same to the coconut garden. As the coconut leaves contain high proportion of lignin, their composting is difficult under natural conditions. A group of earthworms which survive on organic matter alone (called compost worms) can enhance the decomposition process of such materials. Research work carried out at CPCRI, Kasaragod has resulted in locating a strain of earthworm related to African night crawler (*Eudrilus sp.*), which is quite efficient in composting coconut leaves. From a well managed coconut garden, from leaves alone about 4000 kg of vermicompost can be produced per year.

## Advantages

The partly digested organic matter obtained in the form of castings ingested by compost worms, after undergoing physical, chemical and microbiological transformations is known as vermicompost. Vermicompost has several advantages. It contains plant nutrients in easily available form. In general, the vermicompost from coconut leaves contain 1.2-1.8 percent Nitrogen, 0.1-0.2 per cent Phosphorus and 0.2-0.4 per cent Potassium. As the vermicompost is not bulky, compared to other organic manures, its transportation and field application becomes easy. Vermicompost contains plant growth promoting substances such as hormones and vitamins. It also contains higher number of beneficial microorganisms, which help in improving soil productivity. Because of granular nature,



*Earthworms for composting coconut leaves*

vermicompost improves soil aeration, water holding capacity and root growth. The major steps involved in large scale vermicomposting are as follows:

### **Mass multiplication**

Earthworms can be multiplied in a 1:1 mixture of cow dung and decaying leaves taken in a cement tank or wooden box or plastic bucket with proper drainage facilities. The nucleus culture of earthworms is to be introduced into the above mixture at the rate of 50 numbers per 10 kg of organic wastes and properly mulched with dried grass, straw or wet gunny bag. The unit should be kept in shade. Sufficient moisture level should be maintained by occasional sprinkling of water. Within 1-2 months, the earthworms multiply to 300 times, which can be used for large scale vermicomposting.

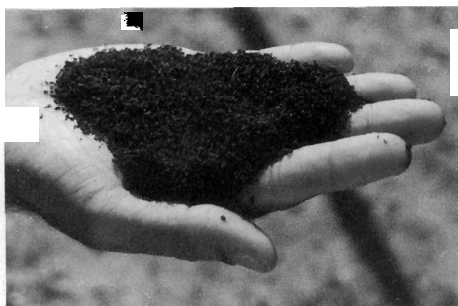
### **Vermicompost preparation**

Composting can be done in pits, thatched shed or cement tank. The length and breadth of the vermicompost unit in tank or pit can be made as per convenience. But the depth should be less than one metre. For compost preparation, coconut leaves weathered for 2-3 months are to be used. The leaves can be used as such or after chopping into pieces. Vermicomposting can be done in the coconut palm basin also. As the earthworms prefer organic matter in the initial stages of decomposition, the collected coconut leaves are to be treated with cowdung slurry@100kg



*Pit method of preparation of vermicompost*

per tonne of leaves and allowed to further decompose for 2-3 weeks. Sufficient moisture is to be ensured by sprinkling water. Earthworms at the rate of 1000 worms per tonne of coconut leaves are to be introduced. It should be mulched with available organic wastes such as dry grass, straw or coconut leaves.



*Vermicompost from coconut leaves*

### Precautions

1. The composting area should be provided with sufficient shade to protect from direct sun light.
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 vermicompost. After two weeks, vermicastings free of earthworms 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.

From CPCRI, Kasaragod, nucleus culture of earthworms is distributed to farmers at a moderate rate of 50 paise per worm for encouraging vermicomposting.

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Extension Publication No : 59 (November, 1999)

Published by : Dr. K.U.K. Nampoothiri, Director, CPCRI, Kasaragod

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Photo : K. Shyama Prasad

Cover design : M. B. Sukumaran and R. Rajasekaran