STUDY ON SUITABLE FEED FOR MAXIMUM REPRODUCTION OF EARTHWORMS

EP No: 06/2005-06; **Research centre:** Thoppur and Alwarmalai Modern Nursery Centre, **Range:** Dharmapuri and Kallakurichi Modern Nursery Range, Modern Nursery Division, Dharmapuri; **Scheme:**- JA Research

Introduction:

Earthworms play a vital role in soil health and organic waste decomposition, making them essential for sustainable agriculture and vermicomposting. Their reproduction rate is significantly influenced by the type and quality of feed they consume. Identifying the most suitable feed for earthworms can enhance their growth, reproduction, and overall efficiency in vermicasting production.Various organic materials, such as cow dung, sugarcane bagasse, and plant residues, have been studied for their impact on earthworm reproduction. Research suggests that nutrient-rich feed sources improve cocoon production, hatchling survival, and biomass accumulation. Additionally, maintaining optimal moisture levels and microbial activity in the feed enhances earthworm development.

This study aimed to determine the most suitable feed combination for maximum earthworm reproduction and vermicasting production.Experiments were conducted at the Modern Nursery Centres in Thoppur and Alwarmalai under the Modern Nursery Division, Dharmapuri, during the period 2005-2006 (E.P. No. 06-2005-06). The objective was to analyze different feeding treatments and their impact on earthworm multiplication and vermicasting yield.

Objectives:

1. To identify the most suitable feed composition for maximum reproduction of earthworms.

Materials and Methods:

Materials:

In both the centres one large vermicasting tub was divided into eight smaller tubs, each filled with 500 kg of feed material based on different treatments detailed below. The experimental unit sizes were 1m × 1m × 1m.

The treatments were as follows:

Treatment	Feed Composition	Initial Earthworm Count
T1	Pressmud + Bagasse + FYM (2:1:1)	250
T2	Pressmud + Leaf + FYM (2:1:1)	250
T3	Leaf + FYM (1:1)	250
T4	Bagasse + FYM (1:1)	250
T5	Pressmud + Bagasse + FYM (2:1:1)	500
T6	Pressmud + Leaf + FYM (2:1:1)	500
T7	Leaf + FYM (1:1)	500
T8	Bagasse + FYM (1:1)	500

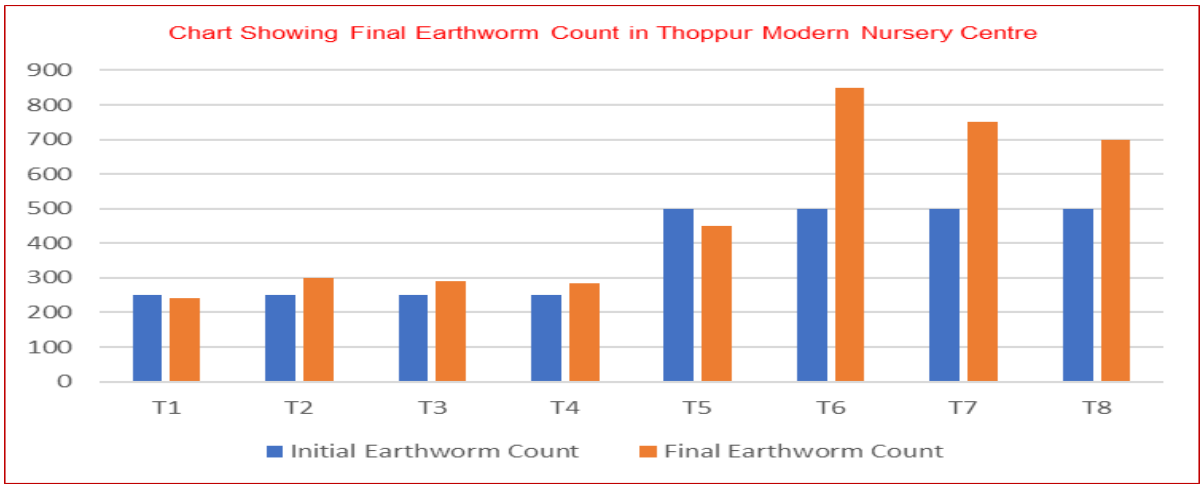
Methods:

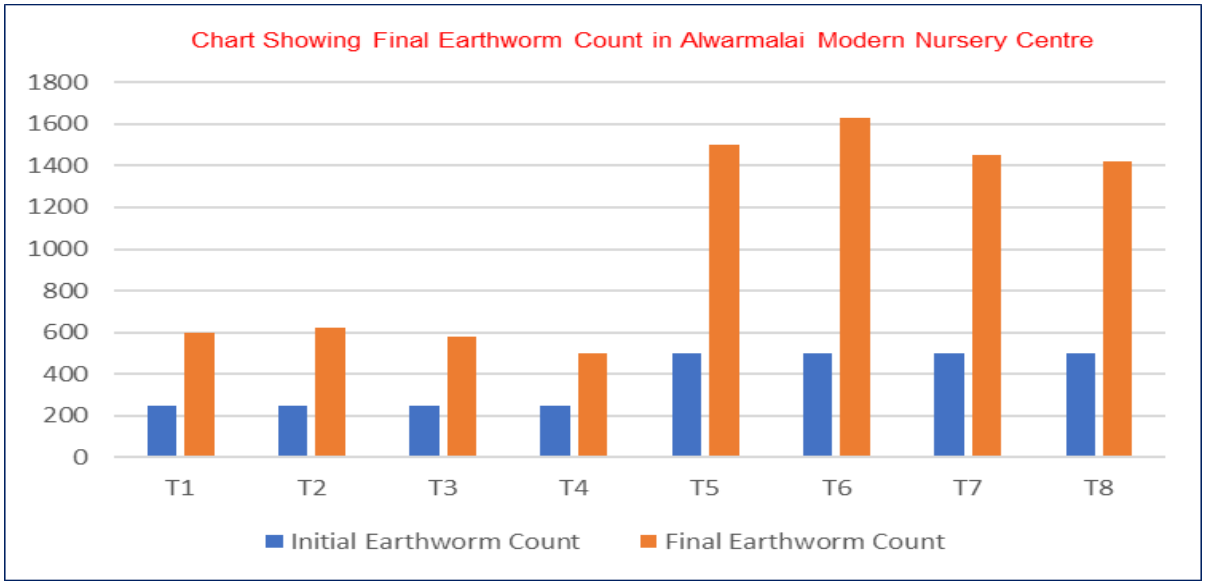
The earthworm population growth and vermicasting production were monitored over the study period. The count and weight of earthworms before and after the experiment was recorded.

Results and Discussion:

The study revealed significant variations in earthworm reproduction and vermicasting production among different treatments. The results are summarized below:

Treatment	Initial Earthworm Count (Both Centre's)	Final Earthworm Count (Thoppur)	Final Earthworm Count (Alwarmalai)
T1	250	240	600
T2	250	300	620
T3	250	290	580
T4	250	285	500
T5	500	450	1500
T6	500	850	1630
T7	500	750	1450
T8	500	700	1420





Among the tested treatments, T6 (Pressmud + Leaf + FYM in 2:1:1 ratio with 500 initial earthworms) demonstrated the highest reproduction rate. Earthworm population in T6 reached 1630 at Alwarmalai and 850 at Thoppurrespectively. T7 (Leaf + FYM in 1:1 ratio with 500 initial earthworms) followed closely behind, exhibiting high earthworm multiplication.

The results indicate that the feed composition significantly influences earthworm reproduction rate. Treatments with pressmud and leaf components provided better nutritional conditions for earthworm multiplication compared to bagasse-based treatments.

Recommendations:

Based on the overall analysis, T6 (Pressmud + Leaf + FYM in 2:1:1 ratio with 500 earthworms) is recommended for maximum earthworm reproduction.