7.2 BEST PRACTICES

EMMANUEL COLLEGE VAZHICHAL

7.2.1 DESCRIBE TWO BEST PRACTICES SUCCESSFULLY IMPLEMENTED BY THE INSTITUTION AS PER NAAC FORMAT PROVIDED IN THE MANUAL

BEST PRACTICE 2

1. *Title of the Practice*: Vermibiotechnology

2. Objectives of the Practice :

Our primary goal is to transform plant-origin and animal-origin wastes, especially cow dung, from our college campus into high-quality vermicompost, ensuring a consistently litter-free campus. Additionally, we aim to pioneer eco-friendly soil health enhancement through Vermibiotechnology, fostering increased crop productivity by promoting vermi-products such as Vermicompost, Vermiwash, and Vermitea. Our mission extends to disseminating these innovative technologies to the broader farming community and students, encouraging widespread adoption for amplified crop yields. Ultimately, we strive to create and sustain a pollution-free environment for the present and future generations.

3. The Context :

Earthworms, often dubbed as the "intestine of the earth," play a pivotal role in the conversion of organic waste into valuable vermicompost. Vermibiotechnology addresses the pressing challenges of diminishing agricultural land and the detrimental impacts of chemical fertilizers. Globally, over 8,300 earthworm species exist, with India boasting 590 species, making Vermibiotechnology an economically viable solution for sustainable agriculture. As population growth and urbanization threaten agricultural land, this technology emerges as a cost-effective remedy. Earthworms, comprising 50% of soil invertebrate macro fauna, facilitate the degradation of organic waste. Our endeavor seeks to harness this transformative power to benefit agriculture and counterbalance environmental challenges.

4. The Practice :

The Composting Earthworms:

Within the realm of Vermibiotechnology, we employ both exotic and indigenous earthworm species for vermicompost production. The African night crawler (Eudrilus eugeniae), European Red worm (Eisenia fetida), Perionyx excavatus, Lampito mauritii, Polypheretima elongata, and Pontoscolex corethrurus constitute our chosen earthworm species. Focusing on vermicompost production, we prioritize three species: Eudrilus eugeniae, Perionyx excavatus, and Lampito mauritii.

Vermicomposting Process:

Our process initiated with the preparation of a dedicated Vermicomposting Tank measuring 10' Length x 3' Height x 3' Width, constructed with brick and mortar and equipped with proper water outlets. To ensure optimal culture conditions, we maintain a pH range of 6.5 to 7.5, moisture levels between 40-60%, and a temperature range of 20-35°C. We source organic wastes from diverse origins, including agriculture, markets, kitchens, municipal areas, sugar industries, and other industrial sectors. Animal dung, free from non-biodegradable materials, is carefully integrated, encompassing cattle, pigs, and poultry droppings. To facilitate earthworm digestion, we subject the organic materials to pre-digestion, including sun drying, moistening, heap creation, mixing, and transfer to a dedicated shed. The final product is a pre-digested nutrient-rich food for the earthworms.

5. Evidence of Success :

Since its establishment in 2017, our facility has been pivotal in converting fallen leaves and cow dung into Vermicompost, contributing to a litter-free and well-maintained campus. Beyond aesthetics, the facility serves as a practical learning ground for Advanced Students, facilitating hands-on experiences in the composting process. Our approach has been instrumental in generating compost rich in humus and nutrients, addressing waste treatment in a sustainable manner. This success underscores the viability of Vermibiotechnology in managing organic waste efficiently while simultaneously enhancing soil health.

6. Problem Encountered and Resources Required :

In the pursuit of Vermicomposting, some challenges have been encountered. Issues such as flies and worms escaping are managed by ensuring proper food covering and maintaining optimal moisture levels. Excess water in the bin is addressed by draining and adding dry bedding. Neutralizing acid levels in the bedding involves the addition of garden lime, with a reduction in excess citrus peel. For smaller systems, additional drainage, air holes, and dry bedding are essential to prevent excessive wetness. Addressing these challenges requires diligence and periodic adjustments to maintain an optimal environment within the Vermicomposting system. Adequate resources, including drainage solutions, garden lime, and proper guidance, are essential to mitigate and overcome these challenges effectively

Evidences

Following pictures shows the vermin compost plant in the college.

Vermicompost

Vermicompost