

The Use of Bio-Compost in Oil Palm Plantation – Sime Darby's Experience

By

Shahrakbah Yacob, Shylaja Devi. V, Kamal Wok & Kumaran.R

Introduction of compost derived from the aerobic decomposition of EFB and POME was primarily driven as one of the waste management measures to alleviate environmental impact of palm oil production. Co-composting of POME and EFB reduces the volume of POME to be treated and discharged while at the same time addresses the handling of bulky EFB for mulching in the field. The effort is in accordance with carbon reduction strategy to improve the carbon intensity of palm oil via methane emission avoidance project for CDM project. Agronomically the compost produced is recognized as an alternative source of nutrients to sustain desirable growth and FFB yield. Subject to positive response, the incorporation of compost in the annual fertilizer program enables the estate to carry out partial withdrawal of inorganic input especially N and K. Similar to EFB, long term mulching with compost has been found to improve soil physical and chemical properties, thus enhancing the productivity of the cultivated land.

With these benefits in mind, Sime Darby Plantation has embarked on a large scale composting project of EFB and POME since 2003. As of 2012, there are 22 composting plants being operated by four concessionaires throughout Malaysia with the potential annual production capacity of up to 600,000 tonnes of compost. However these projects were not free of technical and operational problems during the early days of inception. Among the challenges faced were low and inconsistent quality of compost (nutrient content and moisture), excessive moisture from high rainfall, low POME uptake and inadequate operational support for mulching. These problems are being rectified progressively to make the compost plant more effective and efficient. Better control of composting parameters, closed composting plants, an improved coordination and logistics supports from the plantation have partly alleviated the problems.

In view of the long term operation of the composting plant, intensive R&D programs are in the pipeline. To reduce the current application costs, efforts to improve the handling of compost are currently being undertaken. Possible reduction in compost volume using pelletizing technology is being evaluated. The process is initiated by the removal of moisture using excess heat from milling operations followed by compressing the partially dry compost into pellet or granule forms. Using a suitable mechanical spreader, the efficiency of compost application is further improved. The success of pelletizing technology will also pave the way for the production of fortified compost for specific uses. Fortification of compost with elements such as beneficial microorganisms or plant growth regulators or trace nutrients as such will further add value to the finished product.