ABSTRACT

BRURY MARCO SILALAHI. Waste Management of Oil Palm (*Elaeis guineensis* Jacq.) in Angsana Estate PT Ladangrumpun Suburabadi, Minamas Plantation Group, South Kalimantan. (Under Supervision of SUPIJATNO).

FFB (Fresh Fruit Bunch) process in the oil palm factory in addition yield primary products both of CPO (Crude Palm Oil) and the kernel, also yield by products in the form of solid waste (shells, fibers, and empty fruit bunch/EFB) and liquid waste or commonly known as POME (Palm Oil Mill effluent).

Waste materials are potentially be pollutant for the environment (water, soil, and air). On the other hand it is contain organic matter and nutrients that can be used to improve soil fertility in an effort to increase of plant productivity (from EFB and POME applications). Utilization of waste as a form of waste management is directed to reduce blackened power waste and to increase plant production as well as the application of zero waste concept in an efforts to achieve sustainable agriculture and environment friendly industry.

Purpose of this internship are to learn about waste products management of palm oil, to analyze waste product utilization as an organic fertilizer, and to improve the profesional ability both technical and managerial in the management of palm oil plantation. This internship was conducted at Angsana Estate, PT Ladangrumpun Suburabadi, Minamas Plantation Group, South Kalimantan from February to June 2011. Activities that undertaken are include the activities that related to technical and managerial aspects both in the field and in the office, doing observation about the utilization of waste product as an organic fertilizer in the field, and collecting data and informations.

The analysis result showed that empty fruit bunch (EFB) application can increase the amount of nutrient on palm oil leaf especially Potassium and increase palm oil productivity. EFB application basically more leads to increased soil fertility and increase water holding capacity in soil and nutrient elements for the
better. In particular the EFB application at Angsana Estate has not been made as a substitution for the use of inorganic fertilizers, it just as a supplement only.

Liquid waste (POME) is potential as a pollutant to the recipient media (water, soil, and air) so it must be processed to conform to quality standards that are allowed before it is disposed. POME treatment at PT LSI is done by using ponding system. Ponding system were considered effective, it can reduce the BOD values (Biological oxygen Demand) to <1000 mg/L. Basically, the utilization of POME as organic fertilizer preferred to suppress the negative effects that may be incurred if it discharged directly into open water. BOD values that are permitted for land application is <5000 mg/L, while if discharged directly into open water then the value of BOD should be taken down to <100 mg/L. BOD values showed the amount of organic material on POME. POME with low BOD values (<1000 mg/L) mean it poor of organic matter and nutrients for plant so that their impact on growth and crop production.

POME application in Angsana Estate provide a positive impact to soil fertility improvement that seen from the soil texture improvements, repair of weight per volume, porosity, and permeability of the soil, improve soil pH and increase cation exchange capacity of the soil. POME application significantly influenced the increase crop productivity from increase total bunch/hectare/year but has not shown a significant effect to the increase leaf nutrient status. POME application does not provide negative impact of water surface quality.

Key words: By Products, EFB application, Palm oil, POME application, Waste management