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## Increased and Sustained Yields in Oil Palm through Recycling of Biomass into the Fields\*

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*The National Oil Palm Biomass Roadmap and private enterprises are developing technologies necessary to use high-cellulose feedstock, such as oil palm biomass for production of bio-ethanol and bio-based chemicals. Oil palm biomass such as trunks, fronds and empty fruit bunches are opportunistic sources. Our objectives is to review three in-house experiments on the use and potential impacts of wide-scale collection and removal from the field of trunks, fronds and empty fruit bunch (EFB) on oil palm crop production capacity.*

*Return of oil palm biomass whether in the form of shredded trunks, fronds and EFB clearly influence yields. The increased and sustained yields are due to return of large amount of organic matter and nutrients and consequent improvement in soil physical and chemical attributes. As evidenced from the 10-year application of EFB, soil quality was enhanced significantly through the build-up of soil organic carbon (SOC) and soil pH with the higher rate of EFB applied.*

*Removal of oil palm biomass from the field must be balanced against maintaining SOC levels, preserving or enhancing productivity and minimising the impact of soil erosion. All ramifications of new management practices and crop residue uses must be explored and evaluated fully before the oil palm industry decides to remove oil palm biomass from the field for other uses. Our opinion is that within limits, oil palm biomass can be harvested for higher value bio-ethanol and bio-based chemicals production.*

*Recommendation for removal rates will vary based on regional yield, climatic conditions and cultural practices. Agronomists are challenged to develop a procedure or tool for recommending maximum permissible removal rates that ensure sustained soil productivity.*

**Keywords:** *Oil palm empty fruit bunches (EFB), palm oil mill effluent (POME), biomass, soil organic carbon (SOC).*