

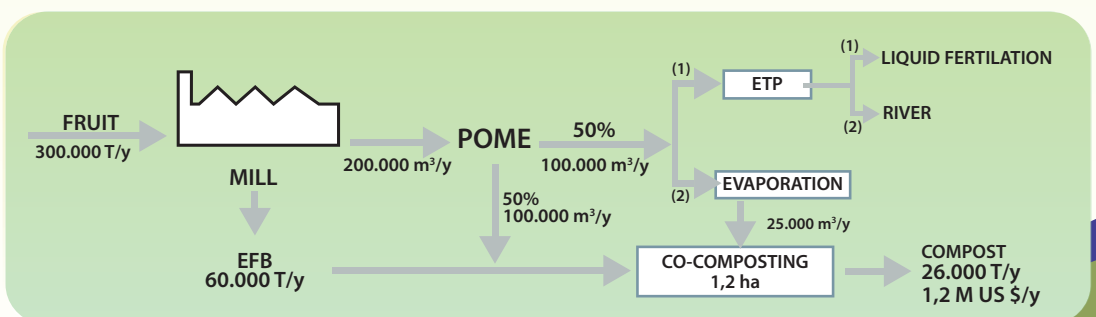
# EFB-POME CO-COMPOSTING PLANT

## The BIOTEC solution



- EFB (Empty Fruit Bunches) has a fertilizer value around 3 US\$ per ton of FFB. Nevertheless, this by-product is rather considered as a waste, because of its moisture, low density and high C/N ratio. Additionally, EFB is not a balanced fertilizer: it is a potash fertilizer. Complementary chemical fertilizers are required for a balanced feeding of the plantation
- POME has a fertilizer value between 4 and 5 US\$/T FFB what means around 1 M US\$/year for a 45 T/h mill
- The difficulty is to "capture" these fertilizer values (production costs lower than transportation and application costs)
- EFB-POME co-composting is one of the options. It is not an easy technology to implement due to the low EFB density, the C/N imbalance, the large area required and the strong rainfalls in the palm regions. Additionally it requires a strong aeration (turning process)
- BIOTEC is a bioprocesses specialist, with a composting experience since 1984 with different wastes: MSW (urban garbage), flowers residues, slaughterhouses waste, sugar mill mud, etc.
- Specific BIOTEC technology for EFB + POME: Compact 4 meters-high heap, around one hectare, aerated by a specialized "lateral turner". No need of roof. Easy and cheap. The turner can be self-propelled or pulled by a (200 HP) tractor.
- The BIOTEC co-composting allows the incorporation of (only) 50% of the POME. Incorporation of 100% of the POME is also possible if we include an evaporation process for 50% of the POME

### FLOW SCHEME

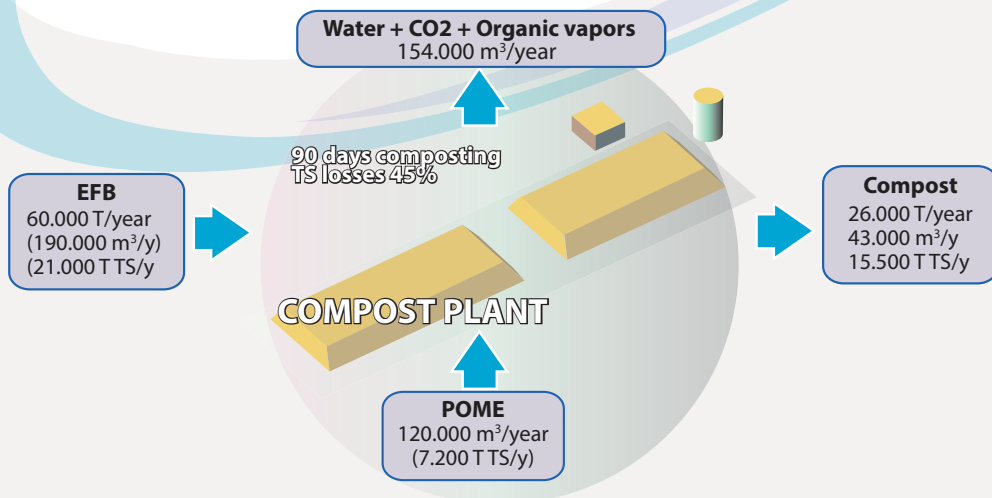


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# EFB-POME CO-COMPOSTING PLANT

The **BIOTEC** solution

## MASS BALANCE



Mass balance for a 60 T/h mill (300.000 T/year FFB)

Considering the use of only 50% of the POME and considering a standard evaporation/loss of nutrients, final compost fertilizer value is around 4 US\$/T FFB, what means 900.000 US\$/year for a 45 T/h mill. With 100% of POME incorporation, compost value would increase up to 5,5 US\$/T FFB (1.250.000 US\$ for a 45 T/h mill).

That 45 T/h mill requires a composting area of (only) one (flat) hectare.



## BIOTEC OFFERS:

- Turnkey compost plant: around 2 million US\$ for a 45 T/h mill. It includes: Blender, Civil works, POME application system, lateral turner, storage & maturation area, trommel (rotary sieve) and spreading equipment), including 6 months operation
- Engineering services with site-specific design, project management and biological + mechanical commissioning, including 6 months operation
- BOOT proposals

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