

FREQUENTLY ASKED QUESTIONS (FAQ)

1. What is BARformula Technology?

BARformula Technology converts Empty Fruit Bunches (EFB) and Palm Oil Mill Effluent (POME) from the Palm Oil milling process into nutrient rich compost. We use a blend of microbes and Plant Growth-Promoting Rhizobacteria (PGPR) to provide an optimum C:N Ratio (Carbon:Nitrogen) for nutrient conversion and microbiological protection for the palms.

2. What are the key differentiators of BARformula Technology?

- BioLogic Blend, a proprietary blend of microbes enhanced with PGPR and cultured for oil and fibre degradation.
- Equipment optimised to operate in a microbe nurturing environment.
- A dedicated team trained to manage the facility operations 24/7.

3. Can BARcompost be used to supplement or replace Inorganic/ Chemical Fertiliser?

Yes, from a nutritional perspective but there is never enough product. Your agronomist is the best person to advise on supplementing or substituting with BARcompost.

4. How is BioLogic Blend different from Effective Micro-organisms (EM) products marketed for composting?

BioLogic Blend contains a blend of microbes and PGPR. They break down lignin, cellulose and hemicellulose, improve soil structure, water holding capacity, nutrient availability and induce bio-pesticidal defence mechanisms within the plant. BioLogic Blend is exclusively produced by BARformula.

5. What is the average nutrient level in BARcompost?

Minimum average nutrient levels in BARcompost are 1.50% N, 0.24% P₂O₅ and 2% K₂O. Nutrient analysis and availability is a factor of the quality of EFB and POME supplied. Compost stability, fibre degradation and CN ratio are factors of good composting practices.

6. Can you increase the NPK by adding inorganic fertiliser to Compost?

Compost is a living product. They are best applied separately to the soil.

7. Can any laboratory test/analyse for the total nutrient levels in Compost?

Yes, if the laboratory is certified for Compost analysis. Compost is 100% organic and requires specific digestion and analysis methods to analyse the total nutrient content in the organic matter. Varying methods of digestion/sample preparation and analysis will yield different results. Identify a laboratory, establish baselines and your Agronomist can establish conversion factors.

8. What about Compost application on different soil types?

Mineral soils are ideal for Compost application due to its lower carbon content. Compost application will balance out the soil organic matter and pH, ensuring higher uptake efficiency with Compost.

Asian peat soils are formed from partially decomposed plant material in anaerobic water saturated conditions. They are high in carbon, have a weaker soil structure and low pH. Mature compost helps increase pH and root density in peat. Peat is not compost.

9. Some composting operations at mills have shut down. Why?

Early composters adopted the European municipal composting model. Their equipment and operating procedures were incompatible with the tropical weather, volume of oil coated mill effluent, high lignin and hemicellulosic content of EFB. Mechanical abuse of EFB induces hydrophobicity. The project sites were a soggy mess. The 'finished' product was wet and smelled foul. Field application suffered from poor planning. Often, neither the Mill nor the plantation want to take responsibility.

10. How is BARformula different?

Composting is a biological process. Loosening the EFB fibres and optimising POME uptake is a microbial digestive function on Cellulose, Hemicellulose and Lignin. Field application requires a well planned systematic and mechanised approach. Successful operators utilise a 7 person team of delivery trucks and infield tractors to properly apply ~3,000mt of BARcompost a month.

11. Do we need a Cover Structure for a Compost Site?

Yes. rain intensity is changing across the tropics. A covered structure allows for better POME management and a 24 hour operation. A 60m (W) x 200m (L) roof structure can process all the EFB from a Mill of ~300,000 mt FFB/year capacity.

12. Is a Concrete Floor necessary?

A concrete floor is the ideal base for long term operations. A compost facility has a 25 year life expectancy, or as long as the Mill is in operation.

13. Can Mills with Biogas projects successfully implement Composting?

Yes, a composting facility complements the operation of a Biogas/ Methane Capture plant. Composting can consume the post bio-digestion effluent and sludge to produce good compost.

14. What is the Composting Mass Balance? Can we project Compost production tonnage annually as a guideline?

* 100mt of FFB generates :

- i. EFB : 20 tonnes / 20%
- ii. POME : 60 tonnes / 60%
- iii. Compost : 18 tonnes / 18%
- iv. Compost to EFB : 80%
- v. Compost to FFB : 18%

15. How does Composting Technology contribute to RSPO/MSPO/ISPO/ISCC Certification?

Composting Technology provides for effective waste management by converting EFB and POME into nutrient-rich Compost for the palms.

A well managed compost facility reduces GHG emissions by POME consumption from the Anaerobic ponds. It also increases the HRT of the existing ETP at older Mills. This reduces the carbon footprint of the plantation through waste management initiatives. Additionally, there is reduction in the total requirements of imported inorganic fertilisers.

16. How can Compost contribute to the overall profitability of the Mill / Plantation?

- i. Consumption of POME volume thereby reducing land application and pond desludging costs.
- ii. 100% conversion to compost reduces the logistics cost of EFB application
- iii. 35-40% reduction in inorganic fertiliser purchase by supplementing with compost.
- iv. Improvement in palm vigour and yield by serial organic enrichment of fields
- v. Better cashflow. Compost production is paid for monthly at a fixed rate per metric tonne.
- vi. Green badging

17. Why BARformula?

BARformula has a proven technology and track record. We build and operate our sites. We produce bespoke BioLogic Blend concoctions to address specific problems our clients face in the field. Our team takes full responsibility for POME consumption, compost quality and operational performance.

The client only manages the evacuation of compost and application. We provide continuous feedback for the Agronomist to ensure optimum cost benefit for the Plantation.

18. A little bit of History

We started by conducting trials at Mills in Malaysia in 2005 based on our research in bioremediation solutions. Upon validation of our findings, we incorporated BAR Formula Malaysia in 2008 followed by BAR Formula Indonesia the year after. Since then, we have consulted, built, managed and operated 22 composting projects across Malaysia and Indonesia. Today, we are one of the largest compost producers globally with a monthly production capacity of ~20,000 metric tonnes per month.

Our journey has been guided by learnings from experts at the University of Louvain (Belgium), American Type Culture Collection (ATCC), Rootgrow Mychorrhizal (UK), Poseidon Biologicals (India) and CIRAD (France).

BARformula is an Associate Member of the Roundtable on Sustainable Palm Oil (RSPO), The US Composting Council (USCC) and the European Compost Network (ECN).

Intellectual rights for Biological Aerobic Respiration Technology (BAR) is vested with Agraria Pte Ltd.