




ESSENTIAL MICROBES (EM)



→ Above 10 million microbes/gram



Neutralizes Acidic Soil



Loosens Soil Structure

- Improves aeration
- Increases oxygen levels for roots



Improves Nutrient Uptake

**We recommend 2kg - 4kg of EM per palm/year depending on soil acidity*

Different Solutions for Acidic Soil

ORGANIC

- Liming
- Bunch ash
- Compost
- Enzymes
- pH Controller

VS

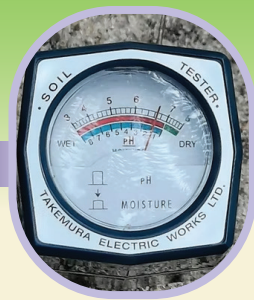
BIO (living organisms)

- Microbes
- ✓ Live bacteria & fungi
- ✓ Continual population growth
- ✓ Quick & lasting results
- ✓ Long term solution

Indicators of Activated Soil



Before EM
 (pH reading: 5.2)



After 2 months
 (pH reading: 6.6)



Growth of oil palm aerial roots



Indication of earthworm activity
 (over a certain time)

• Activate your soil to make your fertilizer more effective •

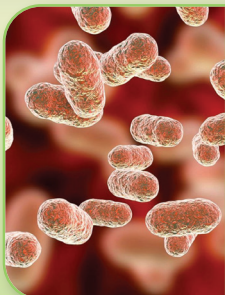
HOW IS YOUR SOIL?



HEALTHY

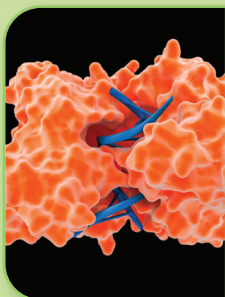
Vs

UNHEALTHY



High symbiotic microbe population

Bacteria that fixates nitrogen from atmosphere (Rhizobacteria)



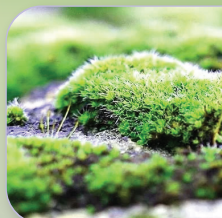
Enzymes produced by microbes

Soil enzymes increase the reaction rate at which organic matter decompose and release nutrients



Full of animal life

Earthworms indicates soil is rich in nutrients



Moss growing on soil

Moss is a sign that the soil is compact and airless



Compressed hard soil

Roots must work harder to grow into soil resulting in poor nutrient uptake



Poor water penetration

Hard soil at the surface prevents water from reaching the roots



Acidic soil

Causes nutrients to be fixed and unavailable

pH scale

Neutral

Acidic

100% uptake

30% uptake

7

6

5

4

3

NPK NUTRIENT ROOT ABSORPTION IS STRONGLY INFLUENCED BY PH

