

Conversion of International Measurements

Metric to	Imperial
1 millimeter [mm]	0.03937 in
1 centimeter [cm]	0.3937 in
1 meter [m]	1.0936 yd
1 kilometer [km]	0.6214 mile
1 hectare [ha] =10,000 m ²	2.4711 acres
1 sq km [km ²] =100 ha	0.3861 mile ²
1 cu meter [m ³]	1.3080 yd ³
1 liter [l]	1.76 pt
1 gram [g]	0.0353 oz
1 kilogram [kg]	2.2046 lb
1 metric ton [t]	0.9842 ton

Tables and Figures

Table 1 – Three Way Model of Microbial Management..... 42

E.M.E. MATERIALS / INGREDIENTS LIST 51

Table 2- EM Diluted, or EMA, or AEM..... 61

Table 3- EM Economics 62

Table 4 - Carbon to Nitrogen [C / N] Ratios..... 102

Comparison of Green Fertilizers to Conventional Method 127

Table 5- EM Economy 156

Fermented Feed- Starter:..... 162

Bedding of the Pig Pen 165

Tables and Figures

Table 6- Trouble Shooting.....	168
ERIN DIXIE FARM HOG FATTENERS.....	171
Phase Out Feeding Schedule.....	172
Farm Layout and Flow of Materials.....	180
ALOHA “all around” Bokashi.....	200
Possible Substitutes relative to C/N Ratios.....	201
Strange Things We Have Fermented (From Drugman Drug House- a drug store on our island that donates their damaged goods).....	201
For Vegetative Stage when Nitrogen needs are higher.....	207
For Flowering Stage.....	208
For Fruit Setting.....	209
Soil Nutrients.....	210
Liquid Extracts.....	211
EM-5 Foliar Spray.....	212
Recycle Your Kitchen Waste and Prevent Red Tide.....	213
A.C.T.....	214
Aloha’s Favorite Tea- Vermicast tea.....	215
EM Specialty Sprays.....	216
First Year Amendments: 2-4 times.....	224
Second Year Amendments: 2-4 times.....	225
Turbo Super Mix.....	226
Seedling Bag Mix.....	229
Aloha Block Mix:.....	236
Lime Required in Kilos/sq M for Aloha House.....	239
Rice Mill By-Products.....	242
Seed Suppliers.....	246
EM and Inoculation Resources:.....	246
Conversion of International Measurements.....	248

Glossary

A.C.T.- Aerated compost tea, see compost tea

Acidic- pH below 7.0

Aerobic- A process that uses oxygen, “with air”

Aerobic compost- High quality compost made “with air”, turning is required to feed oxygen to thermophilic bacteria that create heat, usually in piles or windrows. Inoculation with the proper beneficial microorganisms is helpful.

Alkaline- pH above 7.0

Amendment- Organic material added to soil to improve structure, drainage or fertility

Anaerobic- A process that does not use oxygen, “without air”

Anaerobic composting- High quality compost made “without air”, often called fermentation or silage, usually in drums, pails or plastic wraps. Inoculation with the proper beneficial microorganisms is necessary.

Annual- Plants with a life cycle of 1 season

Beneficial Microorganisms- Small units of life that help things grow or maintain health

Broadcast- Using your hands or machines to distribute seeds or fertilizer over the surface of the soil

China berry- Mistaken for neem, it actually is *Melia azedarach*

Compost- Organic matter systematically combined to create a fertile end product that builds up soil and feeds plants. Good quality compost is high in beneficial bacteria and fungi and will inoculate your soil and feed your plants.

Compost tea- High quality foliar spray and soil drench made by soaking good compost in water and feeding the bacteria with molasses and fish emulsions. Aeration of quality compost guarantees pathogen free tea. This populates beneficial microorganisms.

Cover crop- Plants that occupy the surface of your planting area.

Crop rotation- The practice of using different plants from the previous to minimize pests and disease.

F.A.A.- Fish amino acid, fish silage and fish emulsion

Faucet- Tap, water source

Fermentation- An anaerobic process to increase the nutrient values of fertilizers, composts and feeds.

Fertilizer- Nutrients added to soil or sprayed on leaves. Nitrogen, phosphorus and potassium are often considered the macronutrients, but calcium, iron, zinc, boron, etc. are also important at varying degrees.

Fish emulsion- Fermented fish waste high in nitrogen

Flemingia- A legume shrub, *Flemingia macrophylla*

Green fertilizer- Plants grown and hoed or plowed back into the soil to increase the fertility of the next crop. Often legumes.

Green manure- Plants grown and hoed or plowed back into the soil to increase the fertility of the next crop. Often legumes.

Humus- The result of composts, mulches and green manures transforming into a dark, moist, sticky yet crumbly mass in the soil that feeds crops. Clay is necessary to form the humus crumbs that bind the humic acids.

Inoculate- To treat or spray with beneficial microorganisms, usually sprayed on plant surface or added to soil via bokashi and compost.

Intercrop- Plants grown together or simultaneous planting.

Interplant- See intercrop.

Ipil-ipil- *Leucaena diversifolia*.

Kakawati- A legume tree, Madre de cacao, *Gliricidia sepium*.

Kang Kong- Morning Glory, *Ipomoea violacea*.

Kudzu- *Pueraria phaseoloides*.

Lactic acid bacteria- A family of bacteria that break down organic matter and form lactic acid, usually through fermentation.

Manure- Originally meaning that which is added by hand, now commonly understood.

Mesophiles- Aerobic bacteria that operate in temperatures below thermophiles during composting.

Neem tree- Indian neem, *Azadirachta Indica*.

Nitrogen fixation- The process in which air borne nitrogen (N₂) from air in soil is reduced to more usable nitrogen forms.

Organic matter- Previously living material like bark, straw, bones, leaves, weeds or manure.

Pathogen- Disease causing microorganisms.

Perennial peanut- Mani-mani, *Arachis pintoi*.

Perennial- Plants with a life cycle longer than 1 season.

pH- positive hydrogen ions or H⁺, a logarithmic scale from 1 to 14, a pH of 7 is neutral. Most crops do well between 6-7 pH.

Photosynthetic bacteria- A family of bacteria that convert organic matter into compost through anaerobic processes.

Putrefaction- The result of anaerobic pathogenic bacteria that cause disease and foul odors.

Rensoni- A legume shrub, *Desmodium rensonii*.

Rhizobium- Bacteria which live in legume root nodules and fix nitrogen.

Rhizosphere- the root zone of a plant.

Root nodules- Colonies of bacteria that live mainly on the roots of legumes and fix nitrogen.

Sheet composting- Layers of organic matter composted in the field.

Soil structure- Classification of soil types according to particle size.

Stomata- pores found in great number on the underside of leaves.

Thermophilic bacteria- Heat generating bacteria useful in aerobic composting for transforming organic matter into humus while eliminating disease and killing weed seeds.

Vermicast tea- Aerated worm manure in water to grow bacteria and produce large numbers of beneficial bacteria.

Vermicast- The manure excreted by earthworms. A valuable fertilizer.

Volatilization- Chemical process of changing elements into less stable states, such as nitrogen into ammonia.

Zymogenic- Climax state of soil where the microbial population is preventing disease by feeding the plant a balanced nutrient mix thereby building optimum health in the plant.