

## Appendix 5 – Users' Guide to Aloha Fertilizers

**I**n our training seminars, every student gets a bottle of EME. We teach them by making it in class. They also are trained on how to use their bag of five different soil amendments. This encourages students to use them in the project that they have already started. Some students are just starting out with a new plot. They really appreciate the fertilizers and are encouraged by the results once their plants start to grow. They can see what is succeeding as they learn how each item performs for their soil.

It is advisable to test your soil to know the



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quantity of nutrients that will be required to establish the fertility



needed for your cropping system. Your actual needs will vary considerably from our needs. The recommendations below are merely entry points to build upon. Few farmers ever test their soil, but many have an intuitive feel for the quantities of compost, etc. required because they are good at observing the plants they grow. Some of our students require 2-10 times our quantities, depending on the extent that the soil has been abused or depleted. It is important to start low if you have not tested the soil when using lime and guano, due to the cumulative effect they have over the years.

### **1. EME - Start Spraying EME 1:1: 500**

Example: Backpack sprayer = 30ml EME: 30 molasses: 15 L water

Always use clean water, not city water with chlorine. [You can mix the EME and molasses with water 2-12 hours in advance.]

**EME Application:** Spray at 100 ml./ sq. meter or 1000 L. / hectare to start. Spray plants, soil, compost etc. One liter EME will dilute and spray ½ hectare = 5,000 sq. Meters.

### **2. Bokashi**

Broadcast as a fertilizer, use for side dressing or bury into soil while plowing. 100g /sq. Meter = 1,000 Kg / hectare = 20 sacks / hectare.

In Kitchen Compost - Use 1 kg. Bokashi /20L kitchen waste

**3. Vermicompost**

Broadcast as fertilizer or bury into soil while plowing.

100g /sq. Meter = 1,000 Kg / hectare = 20 sacks / hectare. Use in potting soil.

**4. Make potting soil**

You can give your plants a good start without chemicals or unnatural additives by starting your plants in cups in a nursery. Like children, many plants need a controlled environment to prosper.

**Mix:**

- |                         |                            |
|-------------------------|----------------------------|
| 1-liter vermicasts      | 1-liter rice hull charcoal |
| 1-liter sand            | 1-liter ordinary soil      |
| 1 small handful bokashi | 1 small handful bat guano  |
| 1 small handful lime    |                            |



**Make Soil Blocks-** You can give your plants a good start without chemicals or unnatural additives by starting your plants in soil blocks in a nursery. Soil blocks maximize seedling growth by “air pruning”

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roots and allowing the quick establishment of the plant. You also avoid transplant stress, as the plant is not disturbed in the rhizosphere by cup removal.

### Aloha Block Mix:

- 5 L Rice Hull Charcoal – dry
- 5 L Crop Compost - dry
- 5 L Vermicompost – Moist
- 2½ L Sand – dry
- 2½ L Soil – dry
- 1 L Bat Guano – dry
- 1 L Bokashi
- ½ L Lime – dry
- ½ L Ash – dry
- 200 ml EME plus~ 4 L Water  
(depends on moisture)

- Yields 16 - 3”X 6” PVC t block cylinders.



**Archie carries a tray for seeding and germination.**

**If your ingredients are too wet you need to reduce the moisture.**

The roots are “air pruned” and grow throughout the block, poised to grow into the soil when they are transplanted, and with minor disturbance.

The soil blocker makes four perfect squares every batch. The mix is wetter than normal potting mix so that it binds together. There are all kinds of sizes available.



An inexpensive soil blocker can be made with a 3"- 4" PVC



pipe cut to 12"-18" sections and drilled with small holes to break the suction. A round wooden block tamps the soil so that it holds together. Square blocks are more efficient in space utilization. Rounds waste valuable green house space but still make for better nursery conditions than the plastic cups or trays.



Tomatoes set out and develop quicker when grown in blocks. The roots wind around in a cup and are stressed when planted, but with soil blocks the roots grow out to the edge. The soil blocks also preserve the taproot and allow quick recovery from transplanting.

### **5. Bat Guano**

Use guano directly in the soil 2 weeks prior to sowing or as a basal application. Hand broadcast 1 kilo / 30sq. Meters. Our bat guano is rated at NPK 6-7-2 and is a good source of phosphate and nitrogen. Supplement with potash to bring up the Potassium (K) for a more “complete fertilizer”.

It is very useful as a bi-annual or tri-annual mineral fertilizer replacement for phosphate, especially if you cannot get mined organic supplements to replace the values that were removed from harvesting your crops.



**Guano comes white, black and brown in Palawan. Different bats and seasons produce different levels of potassium and phosphates. Guano is a South American term that is used of very specific bird droppings. In popular usage it now is used to describe bat manure.**

**6. Lime**

Acidification of tropical soils is a natural result of rainfall, climate and soil management interaction. When chemicals are used it gets worse more rapidly than the natural process. Hydrogen ions are released and immobilize nutrients as the pH drops. Aluminum is then released instead and subsequently poisons the plant.

Use lime by mixing into the soil when preparing beds to balance pH. A soil test will help give you the best results, but you can add at 1 kilo/ 100 sq. meters to start and see how your crops perform. Make sure it is buried and mixed in 10-20 cm. for maximum effects. It is a great source of calcium and will also raise soil pH.

The chart below will give you a rough guide on what to expect, but soil structure, organic content and microbial activity can help or hinder pH shift.

**Lime Required in Kilos/sq M for Aloha House**

	pH GOAL	
	7.0	6.5
Starting Soil pH	Lime	Required
6.8	0.3	None
6.6	0.8	None
6.4	1.2	1.1
6.2	1.7	1.4
6.0	2.2	1.8
5.8	2.6	2.2
5.6	3.1	2.6
5.4	3.5	3.0
5.2	4.0	3.4
5.0	4.9	3.8
4.8	5.0	4.2

Agricultural Ground Limestone

**7. Live Stock Electrolyte Mix**

This re-hydrator is used for stressed livestock. When moving animals, they often will experience dehydration. This mix will improve recovery from transporting. It is also helpful when you livestock experience diarrhea or other stressors. Works on humans too! Just be sure to use food grade molasses.

**Electrolyte Mix**

¼ teaspoon baking soda	¼ teaspoon salt
3 tbsp. molasses	1-Liter Water



After our “weaners” arrive, we give them all they can drink. They are usually stressed from transport. The electrolyte mix can be used in the drinker instead of water if the piglets are trained to use it. They are very smart and can learn in one day if you hand -operate it a few times till they smell the concoction coming out. They like to eat and drink so the drinker has a drain below it. We only use D1 grade rice bran for maximum weight gain.