

Workshop series- Grub 2012

# 1.- NATURAL FERTILIZERS

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rosa

# Workshop series- Grub 2012

- Natural fertilizers
- Intensive Gardening
- Water catchments, filters, grey water systems..
- Water tank making ( ferrocement tank )
- Food forest

perm@culture



# per.ma.fun.k

## PERMACULTURE AND REGENERATIVE AGRICULTURE CHATS & HANDS ON WORKSHOPS

@ Sub Farm, Chico, CA

Full registration and payment required via the online registration system using our Sign up Koffee - <https://www.perm@culture.com/sign-up>

### Full Scholarships Available

Openings for the Permaculture Building Fund are available for participants of full scholarships. Requests for scholarships can be submitted to [info@perm@culture.com](mailto:info@perm@culture.com) and received 30 days prior to the start of the program. Applications are reviewed on a rolling basis and are subject to availability.

**2024 Permaculture Building Fund**  
The Permaculture Building Fund is a program that provides full scholarships for individuals who are interested in attending the Permaculture Building Fund workshops. The fund is open to individuals who are currently attending or have completed the Permaculture Building Fund workshops. The fund is open to individuals who are currently attending or have completed the Permaculture Building Fund workshops. The fund is open to individuals who are currently attending or have completed the Permaculture Building Fund workshops.

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COMPOST TEA

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BACTERIA

WORM COMPOST

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TEAS

# COMPOST PILES













70c/158f













# Things to know..

- Aerobic/anaerobic systems
- Aerobic/anaerobic bacteria
- Organic matter/compost/humus
- Carbon/nitrogen ratio
- Biogas
- Temperature
- Placing



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# INGREDIENTS CHOCOLATE MOOSE CAKE

- **Carbon** — for energy; the microbial **oxidation** of carbon produces the heat, if included at suggested levels.  
High carbon materials tend to be brown and dry.
- **Nitrogen** — to grow and reproduce more organisms to oxidize the carbon.  
High nitrogen materials tend to be green (or colorful, such as fruits and vegetables) and wet.
- **Oxygen** — for oxidizing the carbon, the decomposition process.
- **Water** — in the right amounts to maintain activity without causing anaerobic conditions.

**135°-160° Fahrenheit / 50° - 70° Celsius**

- Water/air contents

**carbon:nitrogen mix of about 30 to 1**

- NITROGEN
- CARBON

- Ashes, wood 25:1
- Cardboard, shredded 350:1
- Corn stalks 75:1
- Fruit waste 35:1
- Leaves 60:1
- Newspaper, shredded 175:1
- Peanut shells 35:1
- Pine needles 80:1
- Sawdust 325:1
- Straw 75:1
- Wood chips 400:1

## High Carbon C:N

- Alfalfa 12:1
- Clover 23:1
- Coffee grounds 20:1
- Food waste 20:1
- Garden waste 30:1
- Grass clippings 20:1
- Hay 25:1
- Manures 15:1
- Seaweed 19:1
- Vegetable scraps 25:1
- Weeds 30:1

## Greens = High Nitrogen C:N



**STEPS...**

# Compost tea













- 1/3 water
- 1/3 organic matter
- 1/3 animal manure

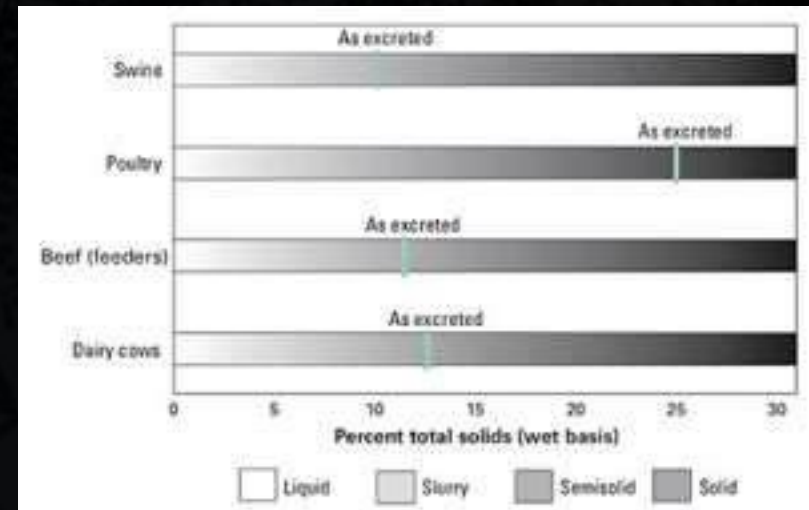
## SIMPLE RECIPIES

(2 days)

- about 3 big handfuls of compost
- 2 tablespoons of molasses because molasses contains several different kinds of sugars,
- 2 tablespoons of seaweed emulsion or fish emulsion for the micronutrients (they'll each give slightly different results)
- 1 teaspoon of citric acid for the bacteria (you can toss in a couple of 500 mg. Vitamin C tablets instead or several tablespoons of lemon juice)

# Diferences between poo

Manure from different animals may have different qualities and require different application rates, such as manure from farm animals such as horses, cattle, pigs or sheep, chicken and turkey manures, rabbit manure, human sewage and guano from seabirds and bats.



Sheep manure is high in nitrogen and potash, and pig manure is relatively low in both. Horse manure also contains lots of weed seeds, as horses do not digest seeds the way that cattle do. Chicken manure, even when well rotted, is very concentrated and should be used sparingly.

Table 1. Amount of organic matter to add from various sources

Material	Rate/1000 Sq. Ft. <sup>1</sup>
Cattle manure	150-500 lbs.
Compost	4 bushels
Horse manure	100-200 lbs.
Poultry manure	50-200 lbs.
Sheep manure	75-100 lbs.
Swine manure	75-100 lbs.

# BOCASHI

from microbial cultures

To make **100 pounds of bocashi** you need:

- 1. 30 pounds of rich soil
- 2. 20 pounds of a nitrogen-rich plant material (such as legume leaves)
- 3. 20 pounds of sawdust, rice shucks or rotten wood (for ventilation)
- 4. 20 pounds of some type of manure, such as cow, pig or chicken manure, or fermented coffee grounds. (If you use chicken manure, you will probably want 40 pounds of manure, as this usually contains the sawdust or rice shucks mentioned in #3, above, already.)
- 5. 1 gallon of molasses, cane juice or cane candy
- 6. 1 bag (about 25 pounds) of carbon (ash; charcoal dust or small pieces of charcoal; this may be made from corn husks, etc.)
- 7. 1 pound of a leavening agent (bread yeast)

This mixture is **turned twice a day for 15 days**, then it's "ready to feed the earth "

# doses

- For Starts: mix veg carbon and earth ( 40 % to 60%) add 10 % to 40% bocashi.. in spray!!
- On earth: as compost!!

# EM

- Effective microorganisms
- Beneficial active microorganisms
- 
- Rice water
- Milk
- sugar





# How to make EM ( lactobacillus culture )= milk

1/4 cup rice

1 quart Mason Jar

1 cup water

1 fine mesh strainer

80 oz milk depends on how much one is making

1 gallon container or jar

1 tsp. black-strap molasses

- Mix rice+water in jar ( stir strongly)..strain rice, close jar and leave 6 days cool dark place )
- Strain liquid, measure contents and add milk in 1/10 ratio, store in big gallon jar close in dark dry place, 6 days.

## EM/2

- Sift liquid and add to compost/animals etc..
- Use ur unactive serum
- Add 1 tsp molasses
- Refrigerate/keep in cold dark place up to 6 months



# what/functions/doses?

- Acido lactic bacterias
- Yeasts
- Photosintetic bacterias
- Actinomicets (antibiotic producing bacterias )
- **IN IRRIGATION SYSTEMS: 1 part EM+1part sugar in 10l water**
- Correct the salt levels
- Accelerates organic descomposition
- Makes fosfates and Cal solubles... unbloquing soils!
- **FOLIAR OR INTO SOIL: 2ml EM+2ml melaza and 1l water**

# BACTERIA

- Capture bacteria
- 200ml boiled rice into jar, cover top with nylon cloth.
- Bury in the moist ground for 2 weeks
- Put organic material close by..
- Harvest bacteria
- In turmix: 3l water+ mix from jar+ 1l molasses
- **APPLY:** 200ml solution+ 200ml molasses every m<sup>2</sup> of compost/vermipile/bo cashi pile etc..

# Worm compost



# Fruit fermentations

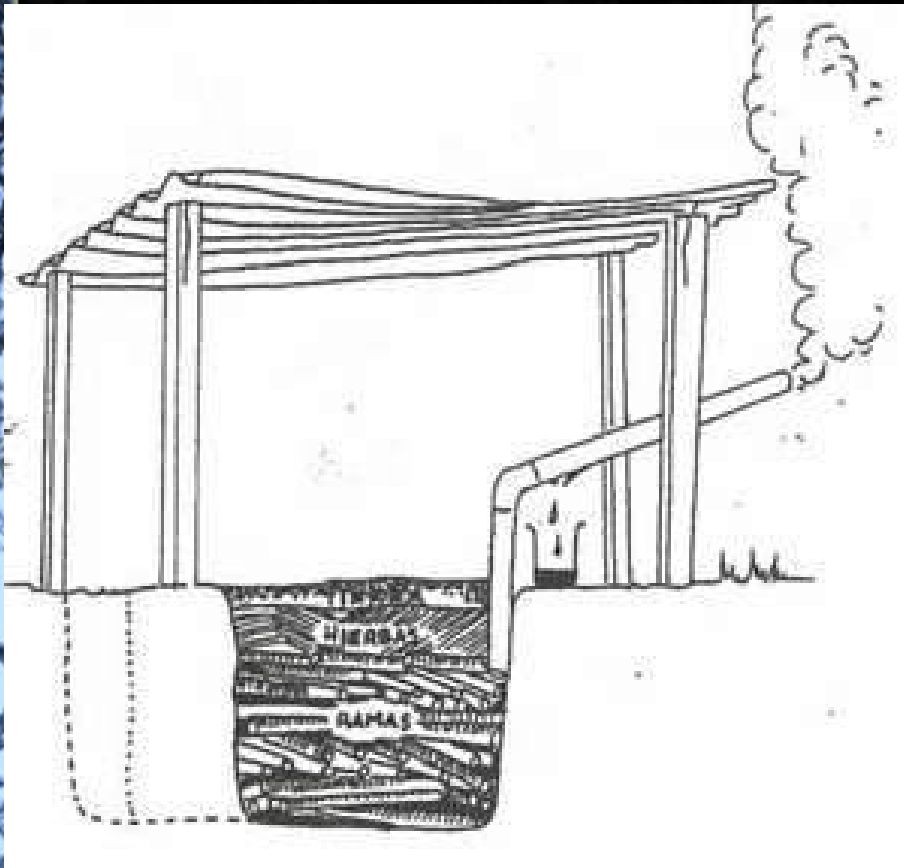
- 5kgs fruit on its way out
- 4kgs suggar
- Mix well in container
- Close container
- Anarobic culture
- Leave 1 week
- Dilute 1/10 water and add to trees



# doses

- Filtrate pulp and bottle.
- Dilute with water depending of what product is going to feed!
- **Leaf vegetables:** 50 ml / 20 l water
- **Root vegetables:** 100 ml / 20 l water
- **Fruit vegetables:** 250 ml / 20 l water
- **Legums:** 100 ml / 20 l water
- **Perenne fruit trees:** 250 - 500 ml / 20 l water

# Wood vinegar





# dosis

- 1l wood vinegar+  
250ml  
honey/molases..
- **Vegetables:**  
100/250ml in 20l of  
water.. foliage each 8  
days
- **Fruit trees:**  
250ml in 20l of  
water.. foliage each 8  
to 15 days

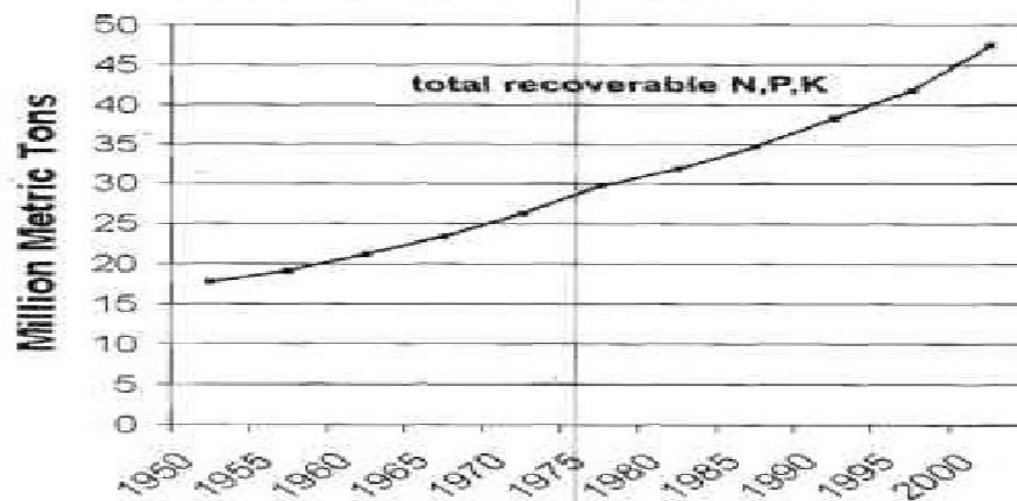
# Facts about WASTE USA

- 14 billion tones waste/yeas= mostly organic waste= agricultural residius, yard leaves, food waste, human and livestock manure.
- 22 MILLION TONES food waste/year in cities of the USA.
- WASTE= descarted material cos of not further posible use.
- **HUMANURE+FOOD WASTE ( FARMING BIOPRODUCTS)= IRRESISTIBLE MIX OF BENEFICIAL MICROORGANISMS**

# HUMAN NUTRIENT CYCLE



### AGRONUTRIENTS RECOVERABLE FROM HUMANURE WORLDWIDE



Global Humanure Production  
1950-2000

# Humans in western cultures..

- Fecal produce year= **159p** of solid waste
- Elephant produce year= **200p**
- **3pounds a day**
- **159p year**
- **159p in a year x**  
**75 years old=**  
**11925p WASTE??**
- 1.5 m<sup>2</sup> wide x  
1.5 m<sup>2</sup> high=  
hole year 4 people  
family!!!
- Rest covered from  
rain a hole year and  
use for the garden!

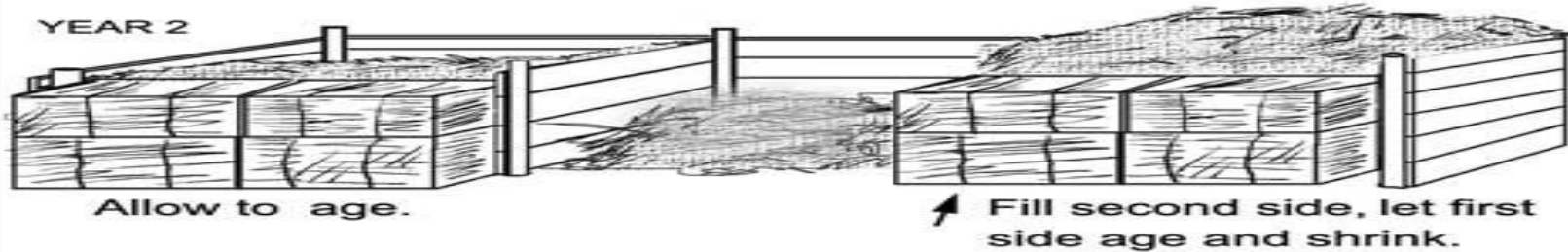
# THE CEASELESS CYCLE OF COMPOST MAKING

Figure 8.5

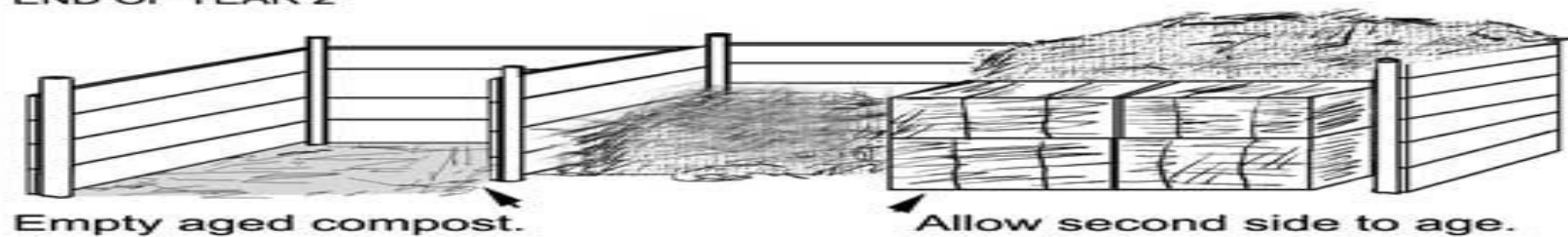
YEAR 1



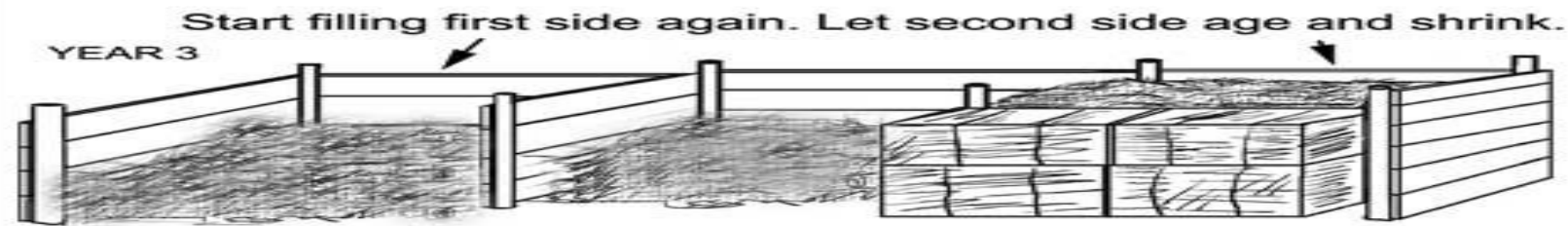
YEAR 2



END OF YEAR 2



YEAR 3



If you want your compost to age for two years instead of one, add a fourth bin to the system. Turning the compost is not necessary (read Chapter 3). A roof over the center bin will keep the cover material dry and unfrozen in the winter months in cold climates (see figure 8.4).

# Urine dilutions

- 1 urine to 10 water
- Add to your vegetables
- **Add ashes**  
(precipitate out the salt deposits and set an alkaline ph )
- 15/20 N
- 2.5/5 F
- 3.5/5 P
- 4/6 Ca
- **Humans 10 p N/year**  
**6p in urine**  
**4p in feces**

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