Biointensive Composting Workshop..

prepared from Ecology Action Grow Biointensive Composting Booklet
Definition: Compost has been described as a complex residue of partly oxidized vegetable and animal matter together with the substances synthesized by the fungi and bacteria which break down these wastes"(Sir Albert Howard, an Agricultural Testament p 24)

We compost to build soil fertility

1. Fermentation.. breaking down of vegetative matter
2. Humus building .. synthesis of organic material into humus, can be up to 30-40% organic matter by volume in heap
3. Mineralized organic matter means organic matter is burned up down to 8-10% and lower nutrient availability to plants

How we do this

- Grow carbon and not excessive nitrogen.. interplanted and or alternating legumes/carbon crops, grow alfalfa, recycle human waste
- Ensure adequate cured compost through increased yields with this method. Microbes only wake up at 2% organic matter in soil begin to thrive at 4-65, higher the organic matter the greater the yield, 2-4+ x national USA average
- Increase effectiveness of compost you produce, by using cool/cold pile method…. 45-60:1 C:N larger particle size, and a little higher moisture, no turning …Higher effectiveness, oxidise less carbon, molders rather than heats, 5-12 months to cure, greater microbial diversity, saving of labor, conservation of nitrogen, and humus, the higher the nitrogen the higher the humus levels
- Maximize microbial diversity
- Using different kinds of carbon, 6 types
  - i) Sugars starches and simple proteins
  - ii) Crude proteins
  - iii) Hemi cellulose, as plants mature comparatively higher levels of structural carbon types
  - iv) cellulose
  - v) fats waxes etc
  - vi) lignins

  Compost made with higher levels of structural carbon produce higher quality compost that can produce higher yields 60:1 produced 2x 30:1, and 45:1 in the middle… stages of maturity and immaturity of carbon crops needs careful understanding and planning
- essential to stop at stage 2
- use composting materials high in lignins, cardoon, sorghum, sunflowers corn

Size:-

- minimum volume 1m x 1m x 1m. you need enough mass to provide insulation needed to maintain curing heat
- a more optimal size 1.5m x 1.5m x 1.2m high
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- maximum size 3m wide and 1.5m high any length
- larger piles run the risk of creating anaerobic conditions
- height needs to be 30cm less than the smaller base dimension

Ingredients:-

Vegetative material

- if making a 45:1 heap ,soil 1 part, immature material 3 parts, mature material 7 parts
- if making a 60:1 heap: soil 1 part, immature 2 parts, mature 12 parts
- immature vegetation contains a high % of metabolic carbon material
- mature vegetation contains a higher % of structural carbon
- together immature and mature vegetation will compromise 90% of total volume

Soil

- topsoil will be approx. 10% of the volume of the finished pile (to determine the amount of soil needed in the built pile divide the total volume of mature and immature material by .9 to get total volume of built pile, then subtract the volume by the volume of vegetative material
- soil acts as a sponge to hold and protect organic materials and plant nutrients for later use by growing plants
- result increase in cured compost

Water

- never chlorinated water

Minerals

- recycling the deficiencies will not grow high brix crops,
- need the right minerals in right relationships, see Koanga **Beginner Gardener** Booklet, and the Koanga **How To Grow Nutrient Dense Food** Booklet

Recipe and Construction

- using fork loosen soil to a depth of 30cm
- lay down a 7cm layer of rough material, must decompose during life of that heap, aim is to increase aeration
- 20cm layer of mature vegetation and moisture
- 20cm layer of immature and moisture
- add 1cm of soil/minerals/moisture
  ……repeat…...
- all layers as moist as wrung out sponge never more than a drop or two using both hands to wring out
- no turning at all for cool/cold piles, lose carbon when turning
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Management

- success depends on how you build it, plus practices employed managing temperature, moisture and aeration
- temperature is managed by …….C:N ratio
  …….amount of soil
  ……..moisture levels
- moisture managed by proper watering techniques, and covering pile
- aeration managed by ……..size of pile
  …….size of particles
  ……..correct moisture levels
- after initial construction daily monitoring of temperature, moisture, aeration, watching, colour, and aroma
  copy in pages 9 , 10 , 11 and 12, 26, 27, 28, 29 30, 31, 32