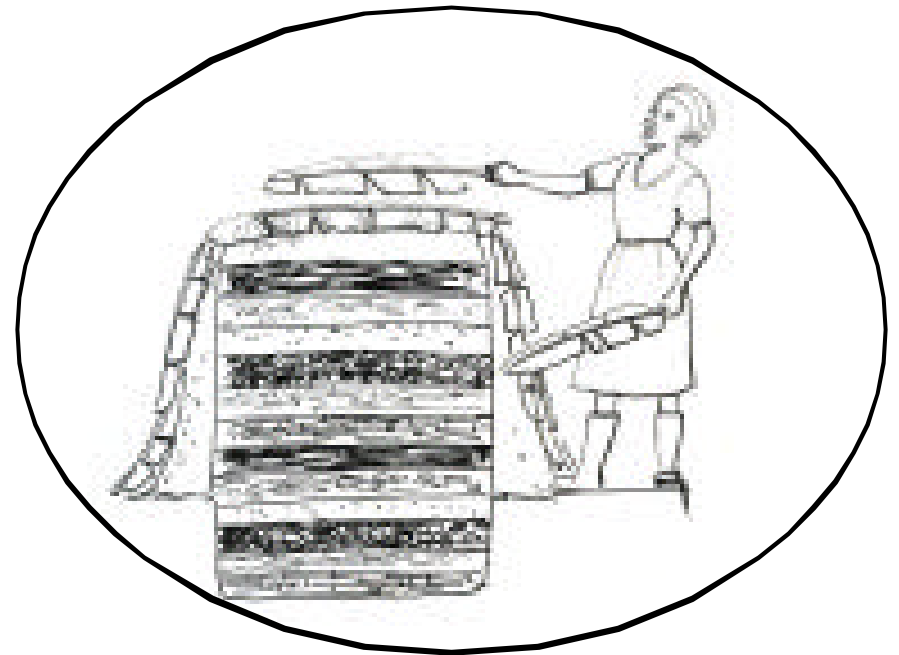


How to make and use Compost Manure



AT UGANDA LIMITED
SOILS BROCHURE SERIES No. 04

Introduction

Compost manure is that fertilizer made by farmers from plants, animal dung, urine and left-overs, that have been decomposed by the existing micro-organisms. These are most times concentrated in a small area, enabling them to decompose very fast. The purpose of making compost manure is to recycle the nutrients in the plant and animal leftovers back to the soil and to also create humus.

Requirements for optimum decomposition of Compost heaps are:-

- ❖ Micro-organisms - the more the number, the better the quality and rate of decomposition
- ❖ Appropriate environment for the micro-organisms to remain alive and multiply - adequate humidity, food, air and warmth.
- ❖ Proper arrangement of the organic material to be decomposed to facilitate work of the micro-organisms

Basic requirements for preparing Compost

1. Refuse:

Consider its capability to decompose; availability of nitrogen for micro-organisms to effect the decomposition process (animal dung, legumes, or artificial nitrogen fertilizers); it should be prepared into smaller bits; thorough mixing is also necessary for high quality.

2. Agents of decomposition:

Micro-organisms are responsible for the decomposition of the refuse. These include bacteria, fungi, earthworms, ants, termites, millipedes and others.

3. Prevalence of optimum temperature:

The compost heap undergoes four stages of tepidity (Luke warm stage in which sugar, starch and fats breakdown); rise of temperature to highest level possible (weed seeds and disease

causing organisms in the refuse heap are destroyed); cooling down; and maturation. Farmers are hereby advised to aim at heaps of 1.5 meters in order to acquire optimum temperatures in the heap.

4. Air:

An adequate amount of air is needed in various parts of the heap in order for the micro-organisms to get the oxygen required for respiration.

5. Moisture:

It is vital for moderate moisture to be present in the heap for the sake of the living organisms existing there. Too little moisture renders the micro-organisms inactive, whereas too much of it will block the air passages. Moderate moisture can be achieved through shielding the heap from wind by preparing compost under a shade; sprinkling the heap with moderate amount of water frequently; preparation of compost in a pit during drought/hot weather conditions and covering the heap with internal as well as external covers.

6. Shuffling the compost manure heap:

It is important to turn and thoroughly mix the heap in order to get high quality compost manure.

Preparation process

There are several ways in which compost manure may be made depending on the capability of the farmer in making compost, climatic conditions, amount and type of refuse available. Three major methods exist - in special boxes, in compost pits and on the earth's surface.

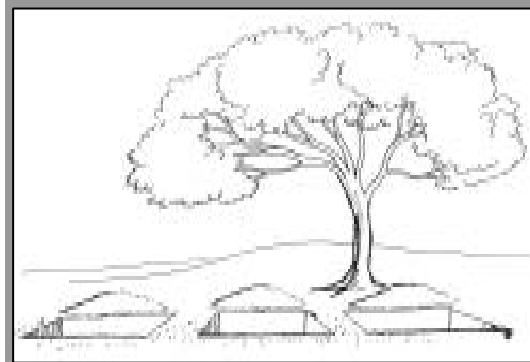
Farmers in regions that have adequate rains or where there are other sources of water mainly use preparation on the earth's surface. Pit composting is applicable where there is lack of water or rain. Site for making pit should be flat, there should be no possibility of water getting into the pits and the pit should not exceed a depth of one meter to limit the problem of inadequate air.

The following steps in making compost are applicable to all the methods:

1. Making Simple Compost from Household organic Trash/ Crop Residues

Regular quantities of compost can be made from household organic trash or crop residues such as banana peelings, bean/groundnut trash, coffee husks and livestock manure. Normally three pits are used. Turning from one pit to another facilitates uniform decomposition and thorough mixing of the materials.

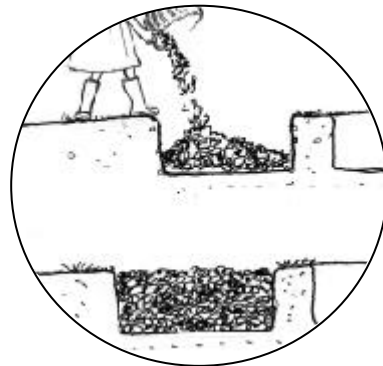
- a) Prepare 3 pits of 2m long by 1.5 m wide and 0.5 m deep in a cool shady place.
- b) Fill pit 1 with organic trash/crop residue



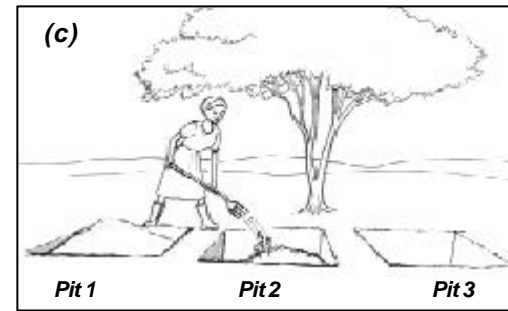
compost pits



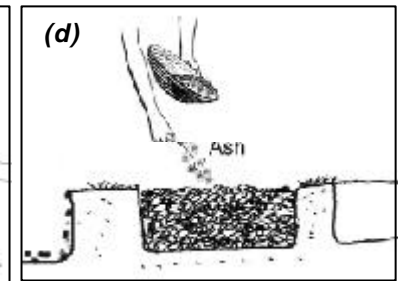
(b)



- c) When pit 1 is full, transfer the materials to pit 2 and refill pit 1. to the brim. This process takes time.

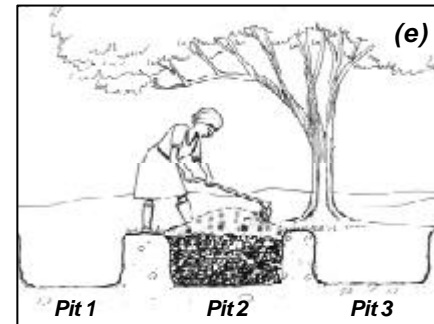


(c)

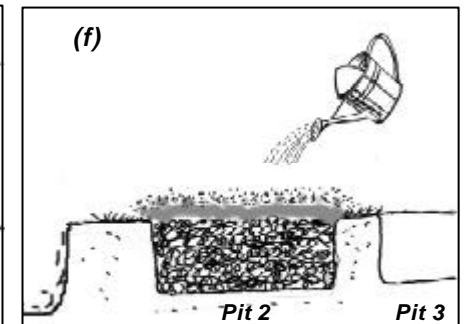


(d)

- d) In pit 2, add to the heap ash and diluted animal urine if available (in the ratio 1 part urine : 3 parts water)

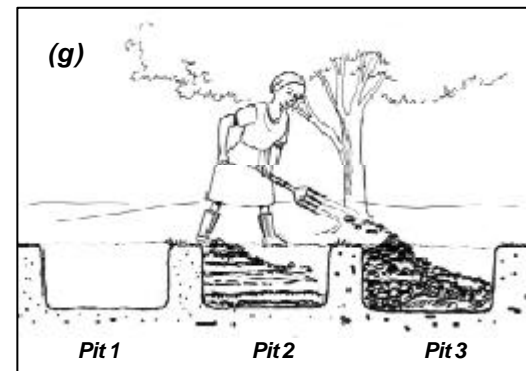


(e)



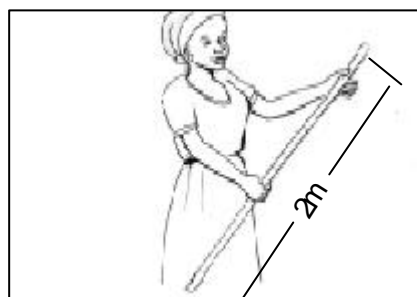
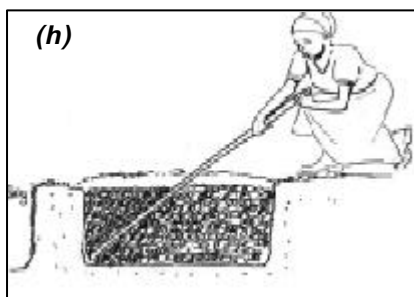
(f)

- e) Cover the heap in pit 2 with a layer of topsoil of 5 cm followed by dry vegetation to avoid evaporation.
- f) Water the heap in pit 2 at frequent intervals (not necessary when raining).



(g)

- g) After three weeks transfer the contents of pit 2 to pit 3, cover as in (e) and water as required.
- h) Drive a dry stick at an angle into pit 3. Remove it and feel it for warmth every 7



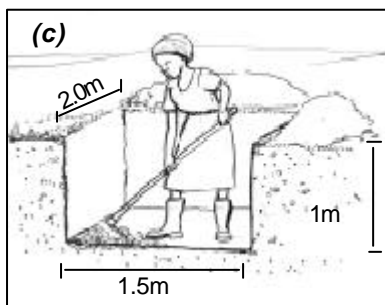
days. This should be continued until the stick when removed feels cool indicating that the compost is ready.

- i) Repeat the pit process from (b) to (h) to get a continuous supply of compost manure.

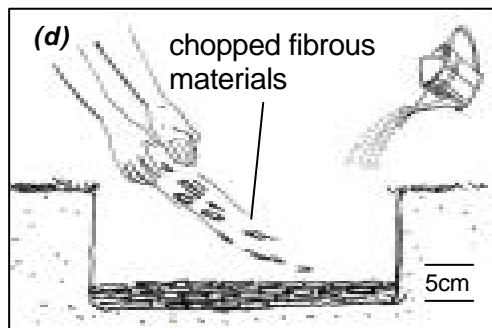
2. Making vegetation Compost

This is made out of fibrous materials such as hedge cuttings, maize stalks and fodder remains, plant materials both dry and green, livestock manure, topsoil and ash.

- a) Select site for preparation of compost. Make sure it is under a shade.

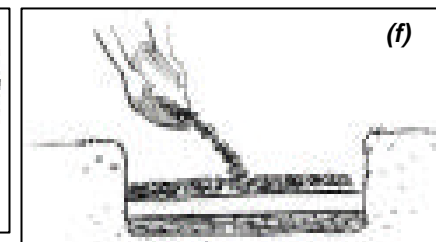
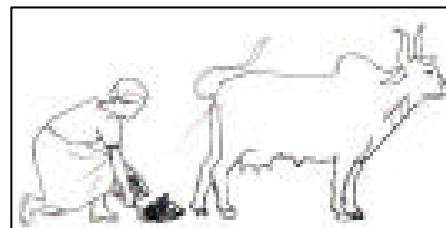


1m depth for dry regions and 0.3m for wet regions

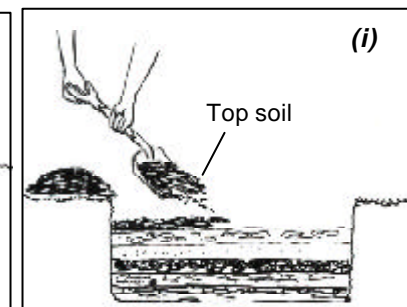
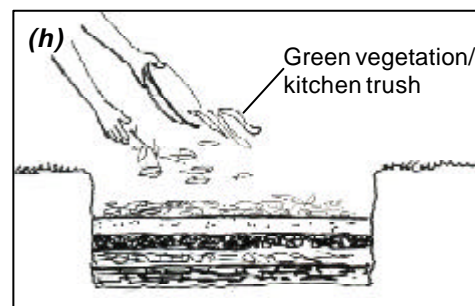


- b) Prepare 3 pits as in 1(a) above, with a depth of 0.3 m for a wet region or 1 m for a dry region.

- c) Loosen the soil at site 1
 d) Put the fibrous material chopped to a length of about 5 cm on the bottom layer of pit 1 about 30 cm thick and sprinkle with water.



- e) Dry vegetation material such as grass, banana leaves, tree leaves; form the second layer of 10 cm and sprinkle with water.
 f) Put a layer of fresh or semi-decomposed animal dung or slurry from a biogas plant to a thickness of 2 cm. The function of this layer is to add nitrogen so as to enable micro-organisms to function well and to add phosphate and other plant nutrients.
 g) Sprinkle ash to just cover the materials. This contains calcium and potassium that help in regulating pH.
 h) Add green vegetation such as green plants (preferably



leguminous) and kitchen trash that decompose easily to a thickness of 15 - 20 cm

- i) Sprinkle with topsoil to a thickness of 2 cm. This prevents

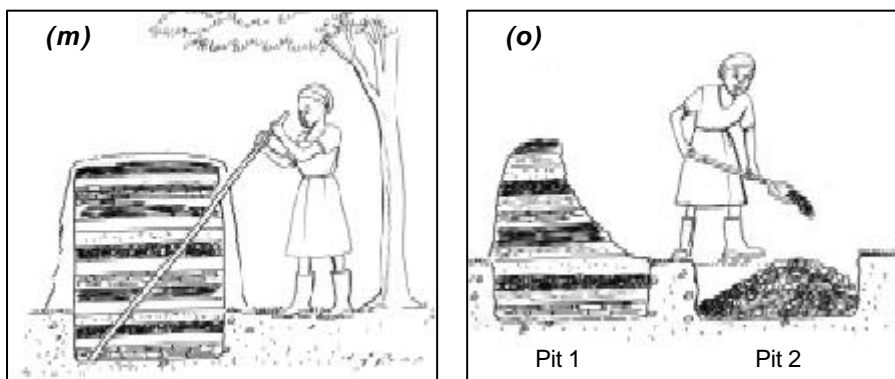
ammonia produced from escaping, prevents loss of temperature and increases plant nutrients in the heap.

j) Sprinkle water on the whole pile adequately.



k) Repeat the procedure from (e) to (j) until the pile is about 1.5 m high.

l) Put a final layer of topsoil to a thickness of about 5 cm and cover



the whole pile with dry vegetation or banana leaves to avoid evaporation.

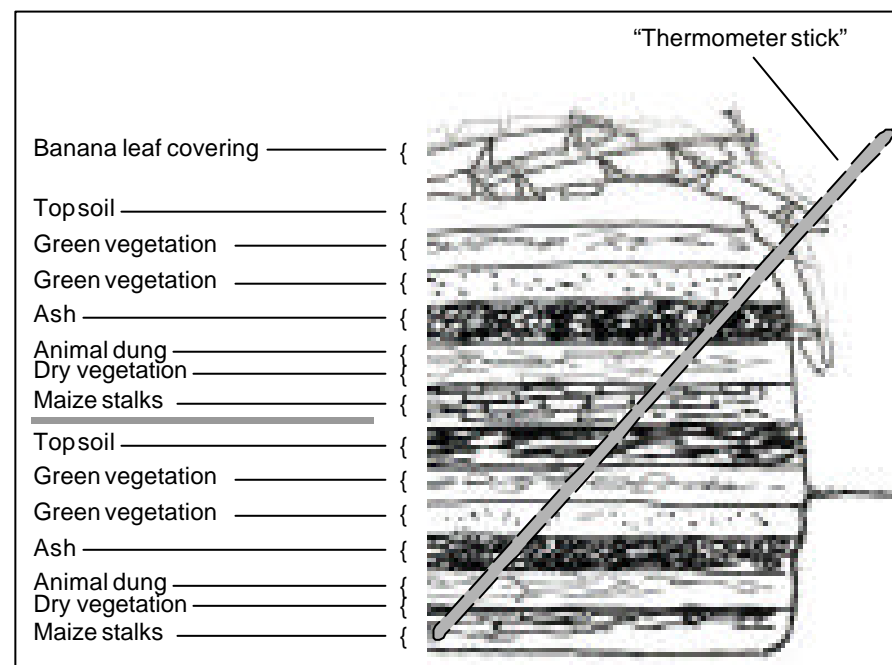
m) Take a dry sharp stick of about 2 m long into the pile at an angle. This stick assists in showing whether the pile is dry or wet and also acts as a thermometer.

Decomposition will have started within 2 - 3 days if the stick when removed feels warm and moist. This stick should be removed every 7 days to monitor warmth and moisture.

n) Depending on the weather conditions, the pile should be watered every 3 to 5 days.

o) After 3 weeks turn the pile from pit 1 to pit 2 in such a way that the different layers mix. Continue monitoring for warmth and moisture.

p) After another 3 weeks turn the pile again. And continue monitoring



Composition of a vegetation compost pit

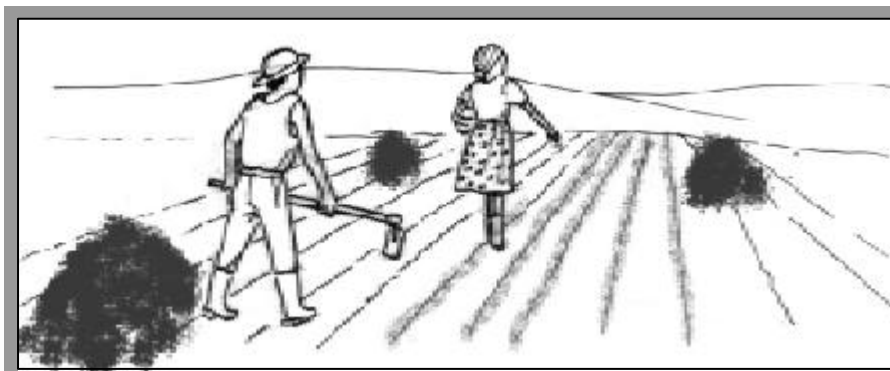
every 3 days. The compost is ready when the stick finally feels cool.

If the compost is ready before the planting season, remove it and store it in a shade covered with a layer of topsoil, banana leaves or polythene, and it should be kept moist.

Characteristics of Good Compost Manure

Good compost manure should be;

- a) fully decomposed,
- b) darkish brown in colour,
- c) without too much heat,
- d) of pleasant odour,
- e) smooth to touch,
- f) of good structure,
- g) of average moisture content,
- h) one that does not have weeds, disease causing organisms or live seeds of any kind,
- i) one that consists of all plant nutrients which it slowly releases to the soil for use by plants.



Compost applied in furrows and covered with soil before planting seed

Application of Compost

- a) For perennial crops such as coffee, bananas and fruit trees such as mangoes and oranges, apply approximately a tinful or two per hole. A similar amount should be applied yearly at the bases of the plants.
- b) For annual crops such as grains and legumes, compost manure should be spread over the entire planting area at the time of land preparation. It could be put in either furrows or rows where crops



Compost spread over entire planting area and dug in at time of land preparation

will be planted. At times it is placed in planting holes. This is a tedious but very helpful exercise especially when the amount of manure is inadequate. One bucket of compost manure is adequate for one square meter of soil. However, the larger the amount of compost applied, the higher the yields and the longer the soil remains productive.

Compost should be incorporated on the surface soil for best results. Loosen the soil with a hoe and mix it with the manure.

Note: *The use of compost manure will not in itself raise yields. Other modern agricultural practices also need to be applied. These include planting modern types of seeds which are high yielding and resistant to disease*



For further information you may contact:

AT Uganda Ltd.

Plot 1 Muwafu Road, Ntinda

P. O. Box 8830 Kampala

Tel. 041-285803, Fax: 041-285564

Email: rojok@imul.com