Urban Composting & Soil

Presentation for

Auroville Green Practices 2013

September 5-7, 2013

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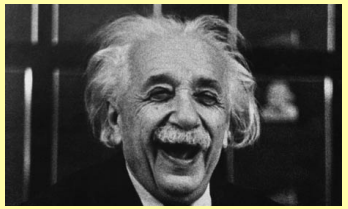
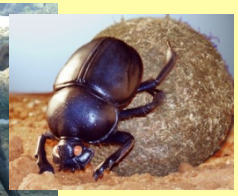
(1) Soil

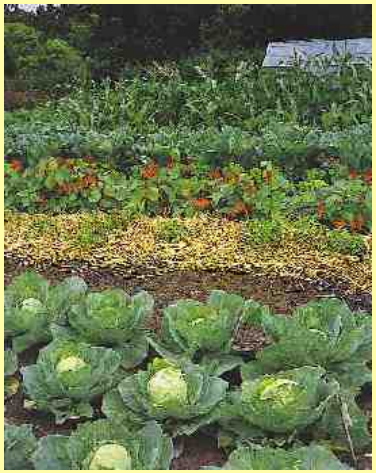
In conventional chemical agriculture:
often treated as a neutral substratum in which to grow crops; as a dead and mechanical receptacle of inputs and outputs.

In ecological / organic / sustainable farming:
treated as an essential component of the biosphere and of all life.

(1) Soil – as part of the cycle of life







(1) Soil

In ecological farming, the ideal soil is

- rich in micro- and macro-life;
- structured, thanks to activities of bacteria, mycorhizae, earthworms and other fauna & flora;
- supplied with a high variety of elements and microorganisms that metabolize these elements and make them available to flora & fauna;
- rich in humus and stable organic compounds;
- rich in air space and water holding capacity.

(2) Basics of composting

Compost is organic matter decomposed, or broken down, into a soil amendment and fertilizer.

Composting facilitates development of stable organic compounds (humus) and, if sourced from a wide variety of sources, provides all elements (“nutrients”) required for plants and land organisms.

(2) Basics of composting

Composting involves:

- Mixing of organic matter (“bio-waste”) in an appropriate ratio, e.g. two parts vegetal waste with one part animal waste (C/N ratio);
- Sizing the organic materials into bits and pieces of appropriate size, approx. size of a small finger;
- Maintaining a moisture balance of 40-50% to allow microorganisms to live and propagate.

(2) Basics of composting

Additional technical steps:

Microbial inoculates / compost starters (e.g. EM);

Occasional turning of the compost in order to break longer and harder plant matter;

Mineral additives such as rock phosphate, basalt dust, slaked lime, ashes etc.

(3) Issues of urban composting

- Fouling of bio-waste if wet and without sufficient air – typical for kitchen and canteen waste – with generation of foul smell;

- Attraction of flies and other insect nuisance;
- Attraction of rodents, of dogs, cows and other stray animals.

(3) Issues of urban composting

Control of fouling of bio-waste, of foul smell and flies & other insect nuisance:

Correction of moisture contents: enough mixture of dry raw organic material (leaf litter, coir dust, saw dust, rice husk, peanut shells etc.);

Treatment with activated EM solution;

If necessary, uppermost layer always dry material (leaf litter, coir dust, dry soil etc.).

(3) Issues of urban composting

Control of attraction of rodents, dogs, cows & stray animals:

Mechanical barriers, gates, mesh etc.

(4) Techniques

In heaps and windrows

In pits

In boxes & containers

As vermicomposting

As micro-aerobic fermentation, as bokashi, in static piles etc.

(5) Integration of ecosan “products”

Use of urine into the soil; if in one’s own garden, without hygiene reservations;

Control of odour via sub-soil fertigation or use of EM.

(5) Integration of ecosan "products"

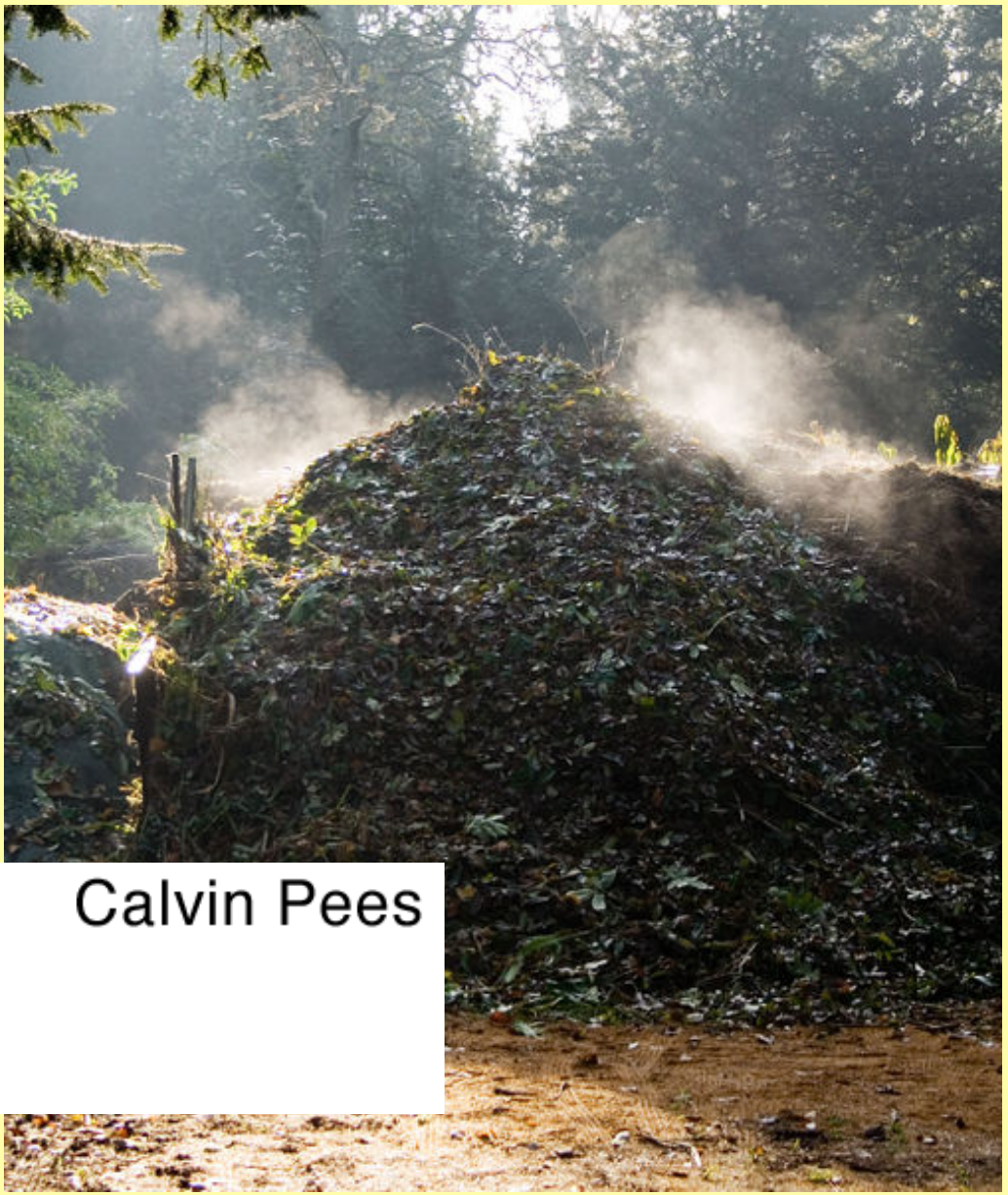
Use of fecal compost, as per WHO, only after 12 months;

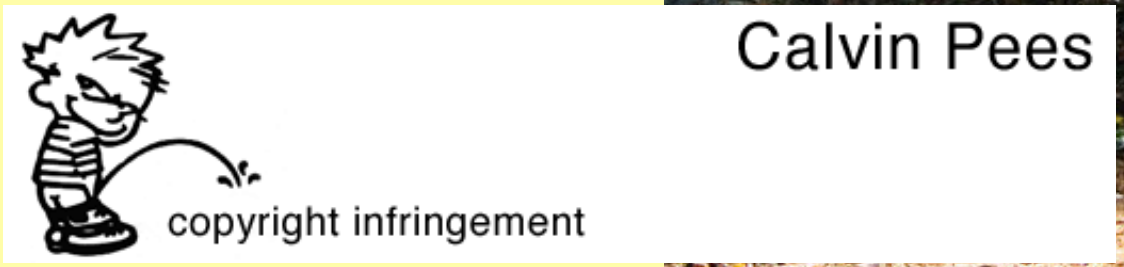
Lactic acid fermentation (e.g. via EM) seems to speed up hygienization, as per first results in the Philippines >> terra preta sanitation;

Feasible if practiced in one's own garden and if precautions taken. (Practiced!)

In Germany e.g. marketed as Triaterra compost toilet, along with biochar and EM.

Thank you.
Lucas





Calvin Pees