Revitalizing Top–Soil with Organic Material

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Abstract

- Land is important for farmers, especially healthy top soil needed to produce crops every growing season. Periodically soil does not properly cultivate crops, and problem usually reflects the condition of the top soil. Machinery and daily over-grazing also have a hand in the diminishing of nutrients in the dirt. *Through controlled experimentation and proper rehabilitation efforts, ruined plots of top-soil can be restored through innovating composting methods, producing nutrient soil and application of the mulch for the effected area.*
Soil

- Food for plants
- Aerobic microorganisms help produce crops
- Limit tilling, plowing, and mobile activity
Nitrates and Elements

- Matter plus Organism enrich the material
- Nitrogen to Carbon ratio, typical target 30:1
- Symbiotic relationship with nature is key when working to improving compost
Soils are not machines: It's an ecosystem that needs to be fed and covered with plants and residue at all times.

Fungal hyphae produce humic compounds and organic "glues" (extra-cellular polysaccharides, proteins, lipids, etc...)

The Glues bind soils particles into aggregates and improves soil porosity and infiltration.

Mycorrhizal fungi and other members of the fungi family are — soil structure builders.
“Life in the soil”

- Soil surface and inside
  - “It’s an ecosystem that needs to be fed and covered with plants and residue at all times.”

Activity inside the structure of the material
Composting

- Creates organic material that decomposes biodegradables
- Rate all depends on your research and labor
- Efficient research to be effective
- Efficient labor to be productive
- Nitrogen parts to Carbon parts ratio (30:1)
- Water is essential
  * Obnoxious weeds can be defused in very hot temps
Things to know...

- Composting takes up to three months
- Manure helps with foliage
- Shredded paper excellent when very alkaline
- Egg shells are exceptional if soil is very acidic
- Wood chips are tricky; they compete for water and also retain water well
- No dairy products!
- No meat or poultry products; may attract rodents, or dogs
- Bananas/potatoes/oranges, coffee grinds, leftover produce
Things to look for...

- Rich mulch
- Ability retain water
- Insects and other nematodes
- Plants and weeds
- Pathogens (molds)
Things to do...

- Paint compost bins black
- Use black tarps (preferably heavy duty)
- Turn the compost
- Leave it alone
- Test your top-soil
- Test your compost
- Pull weeds
- Set-up water drip line systems for full self-sufficient self-sustainability
- Plant in the targeted areas [where the sun shines]
When you need help...

- Add a bag of soil from Home depot to compost units
- Add minerals
- Remember “the greens, the browns, plus the water.”
- Many innovative ways to compost
Four Different types of compost sites

- Generate suitable soil for crop cultivation and agriculture/education plant production projects
Concepts for L.G.O. Demo–Farm

- Use organic waste matter from local cafeteria or restaurant
- Next objectives with the project include building more efficient and sustaining composting units on the Dine College Land Grant Office demonstration farm.
  - Rotating unit
  - Concrete unit

*No swine and outhouse projects anytime soon…*
“Compost is organic fertilizer that can be used to grow plants. The plants actually feed off of the compost material. Gardens sustain life.”
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Thank-you for your time and learning.
Best line from a movie

“Field-car is a vehicle that spreads the cows excrement all over the field to make the lettuce grow,” (American Graffiti).