Soil Fertility Enhancement 101

And Beyond

Feed The Soil And The Soil Will Feed The Plants

Compost is proof that there's life after death

Composting is the cornerstone to soil health = plant health

Farmers have known for thousands of years that to have healthy plants you must grow healthy soil.

Types of Composting

- Static - “Compost Happens” sooner or later
- Mulching - A form of static composting
- Pit Composting - Covered by soil
- Sheet Composting - Layers of materials
- Vermi-composting - Vermiculture = Worms
- Active Composting - Actively turning

Benefits of making compost

- Diverting organic matter from the waste stream
- Nutrients from the site stay on the site
- Quality control - not all compost is equal
- Living Amendment - It's Alive!
- Very good exercise

Benefits of using compost

- Improved soil structure
- Increases water and nutrient holding capacity
- Increased organic mater in soil
- Acts like slow release fertilizer
- Buffers ph swings
- Sequesters carbon
- Breaths life back into our soil

More Benefits

- Feeds the “Soil Food Web” Is a major energy source for the critters = The Living Sponge
- Improves drainage - adds porosity
- The spongy quality of compost helps prevent soil compaction
- A heathy population of microorganisms secrete gluey substances that hold soil together
- Compost Builds healthy live soil = Healthy Plants
- Increases the biodiversity of your soil

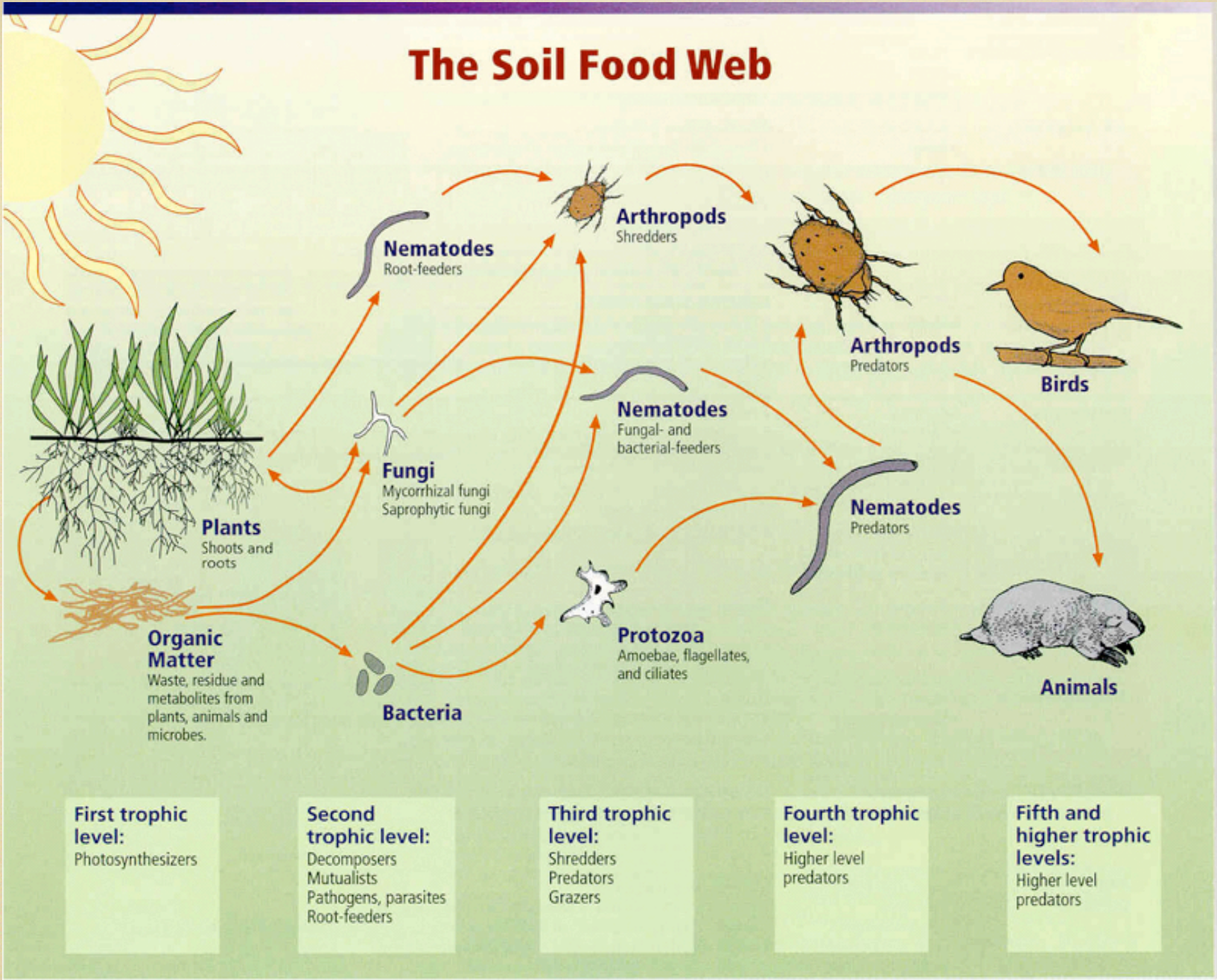
COMPOST HAPPENS!

- Not all compost is created equal!
- Compost cures all. (Pretty much)
- High quality vs. low quality.
- Compost can be good for the planet or not so good.
- Nature composts every thing.
- End result of compost is humus

NUTRIENT CYCLING:

LIFE IN THE SOIL FOOD WEB

- Plants (roots and shoots)
- Organic matter (green waste, crop residue, dead animals, manures, food scraps and microbes)
- Arthropods (shredders)
- Bacteria (decomposers, pathogens)
- Fungi (mycorrhizal, saprophytic and pathogens)
- Nematodes (fungal and bacterial feeders, predator)



Relationships between soil food web, plants, organic matter, and birds and mammals
Image courtesy of USDA Natural Resources Conservation Service
http://soils.usda.gov/sqi/soil_quality/soil_biology/soil_food_web.html.

MICORHIZAL MUSHROOMS

- Beneficial symbiotic, extends feeder roots up to 1000 times = mineral mining
- Over 90% of all plants on earth rely on fungi to exist
- Nutrient exchange at root zone
- Mycelial network support system for the entire ecosystem
- Hyphae 100 times smaller than hair roots

SAPROPHYTIC MUSHROOMS

- Natures recyclers (enzymes)
- Lignin decomposition (very specialized)
- Nutrient recyclers (carbon)
- Predigest organic matter (crude oil)
- Toxic waste (heavy metals, radiation)

Cover Crops - Green Manures

- Plants actually build soil... All plants
- Nitrogen fixing - Legumes + Rhizobium bacteria
- Bio-mas - Grains + Carbon sequestration
- Sub-soil fracturing - Mustards + Deep breathing
- Mineral Miners - comfrey, borage, nettles
- Over all soil conditioning (Plant positive!)

Making Compost:
The Basics

Recipe for success:

Greens + Browns + Moisture + Air
+ Time
= compost (more or less)

Thank You Very Mulch!