Impr☺ving Y☺ur S☺il Quality!

Workshop Outline

I. Soil Function: Soil is a matrix of minerals, organic matter, air, water and living organisms.
What are the 4 things plants need?

II. Soil Formation -glaciation and weatherization of rock

III. Soil Formation → Parent Material Affects Particle Size/Density
Particle Size, Pore Size and Organic Matter Affect Aggregate Stability

IV. Soil Quality is the fitness of a soil to a specific, human-determined function.
For Example: Supporting Plant & Animal Life (Macro-Invertebrates, Insects, etc.)
Supporting Human Health (Nutrition) & Habitation (Construction)

V. Soil Quality Indicators

Physical Indicators
Color, Texture by Feel Analysis
Soil Suspension/Sedimentation Test

Chemical Indicators
pH Test
Electro-conductivity Test
[the good (lead binding) & the bad salts (miracle grow)], the GAIA Rule
N, P, K, S, Mg, Ca and Cation Exchange Capacity

Biological Indicators (the Presence of Soil Biodiversity)
Worms, Pill Bugs, Centipedes & Millipedes, etc.
Limiting Factor for Plant Growth=Nitrogen
Limiting Factor for Plant-Nitrogen Availability=Carbon
Carbon:Nitrogen Ratios (3:1 or 2:1)

VI. Improving Soil Quality: Soil Amendments to Improve Fertility
Manures: What kind, when, how and how much?
Compost: Outdoor Yard & Kitchen vs. Compost Tea & Vermi-Composting
Nitrogen (Greens):Carbons (Browns), Nitrogen Tie-Up
Organic Amendments: Blood Meal & Bone Meal
Water Solubility & Synthetic Fertilizers: Why not? Salts, Organisms & Embedded Energy Needed to Produce Fertilizers

VII. Improving Soil Quality: Effects of Compaction
Reduced Root Penetration & Water Infiltration/Permeability
Decreased Pore Size and Root Zone Soil-Temperature (Tomatoes)

VIII. Improving Soil Quality: Soil Amendments for Managing Compaction: Mulches
Wood Chips Pine vs. Deciduous; Side –dressing with Compost

IX. Improving Soil Quality: Other Soil-Protection Practices
Soils Protection Year-Round (, especially winter): Cover Crops, Inter-planting & Companion Planting
When and How to Water based on Your Soil Quality

X. Improving Soil Quality: Heavy Metal/Lead Exposure, Site History
Identifying and Reducing Exposure: Harmful for Youth, Lead Toxicity & Your Health
Site History, Best Practices For Reducing Risk and Heavy Metal Exposure