

Soil and Soil Improvement

Spiritual Connections:

- Genesis 2:7. Man was formed from the earth.
- Genesis 3:19. When we die we go back to the earth.
- And in-between our birth and our death, we physically occupy a piece of earth. There is something special about place, the ground that we occupy. We develop a connection with the land, a love for the land (hometown). The piece of land where we settle determines our relationships (niche and relationships) neighbors and community, plants, creatures, and the soil itself. And it is through those relationships that our lives are sustained by a particular piece of land.
- In other words, our physical lives are maintained by eating fruit from a particular physical piece of the earth.
- Eden was a particular place. The promised land was a particular place, and in it each family had a particular place in perpetuity (it came back to them every 70 years). And we are promised a particular place in the New Earth.
- The land, soil, is at the very heart of our existence. Our relationships and our life comes from it, and we go back to it.
- The soil and the heart.
- Matthew 13:19. When anyone hears the word of the kingdom and does not understand it, the evil one comes and snatches away what has been sown in his heart. This is what was sown along the path.
- Jeremiah 4:3,4. For thus says the Lord to the men of Judah and Jerusalem: "Break up your fallow ground, and sow not among thorns. Circumcise your selves to the Lord; remove the foreskin of your hearts,
- Hosea 10:12. Sow righteousness for yourselves; reap the fruit of unfailing love, and break up your unplowed ground; for it is time to seek the Lord, until He comes and showers his righteousness on you.
- God created the physical world that we see with our eyes, and manage with our hands, to teach us about the unseen world of the heart and of the spiritual realm. COL chapter 1.
- It is clear that God makes a connection between the state of the heart and the state of the land. The state of the land mirrors the state of the heart. He has a purpose in doing this.
- It is God's intention that the land be blessed, inhabited and fruitful. (Adam and Eve, Abraham, children of Israel in promised land, restoration of rain in Elijah's day, return from Babylonian captivity, the promise of a New Earth)
- Many times in scripture, when people left God and His ways, he cursed the land and/or took it away from them (Eden, Cain, the flood, Elijah, the Assyrian and Babylonian captivities, Malachi 4:5,6, the destruction of Jerusalem, the day of Judgement).

Practical Connections

- Soil is composed of minerals & organic matter (50%), and air & water (50%).
- Mineral particles vary in size from
 - sand (naked eye).
 - silt (optical microscope)
 - clay (electron microscope). beet seed, beet, wheelbarrow

- The minerals that plants need come from these sources, broken down by physical grinding, sun and rain, chemical reaction, some plants (mosses and lichens), and the life in the soil.
- Organic matter comes from the death of any living thing on or in the ground.
 - Organic matter provides food to diverse and complex communities of microbes, fungi and other organisms (like worms) in the ground. The microbes and fungi are what make the mineral nutrients of the soil available to the plant. Good soil will have 5,000-20,000 lbs of living organisms (microbes, fungi, worms, moles, etc) in the top 6 inches of an acre.
 - Humus (the breakdown product of organic matter) electrically attracts minerals and microbes.
- Air and Water are necessary to support the life in the soil.
- A healthy soil is made up of aggregates, clusters of minerals and organic matter held together by secretions and glues produced by the life in the soil. And there are spaces around the aggregates for the movement of air and water.
- So, why is it important to break up fallow ground? Spiritual connections? Intention. Work.

Soil Analysis

- Structure. Make a ball. Squeeze it.
- Organic matter. Worm count from one square foot of soil - 10-30 worms is good.
- Air and water. Can you sink a spading fork into it with minimal resistance.

Compost

- Made of plant material.
- Two basic components of plant material - Carbon (C) and Nitrogen (N). We often call them Greens (N) and Browns (C). Greens are generally fresh material, browns are dried material.
- Build your pile with a ratio of 3 parts Browns to 2 parts Greens.
- Pile needs to have moisture and air. (why?) No more than 6' wide or high. Cover.

Mineralization

- Plants need 17 elements to grow well.
- Our human bodies need at least 27 elements to do well. Where do we get these minerals from? To mineralize your soil use rock powders, sea salt (1 sea water/10 water), kelp.