

# Soil in Parker County



# Understanding Soil

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- The importance of soil cannot be over emphasized when trying to maintain plant health. Knowing and understanding how to manage your soil is basic to producing healthy plants.

O – Organic, slightly to highly decomposed

A – Loose, unconsolidated rock

B – Silicate clays, iron, aluminum oxide, etc.

C - Bedrock



## SHAWN, (COUSIN TO PIGPEN)

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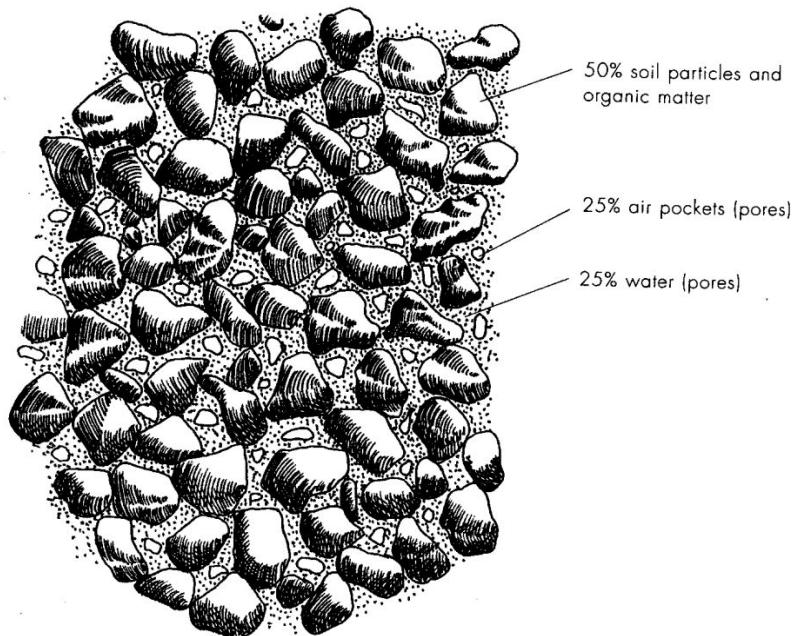
Soil Provides

- Support
- Heat
- Air
- Water
- Nutrients

# What is Soil?

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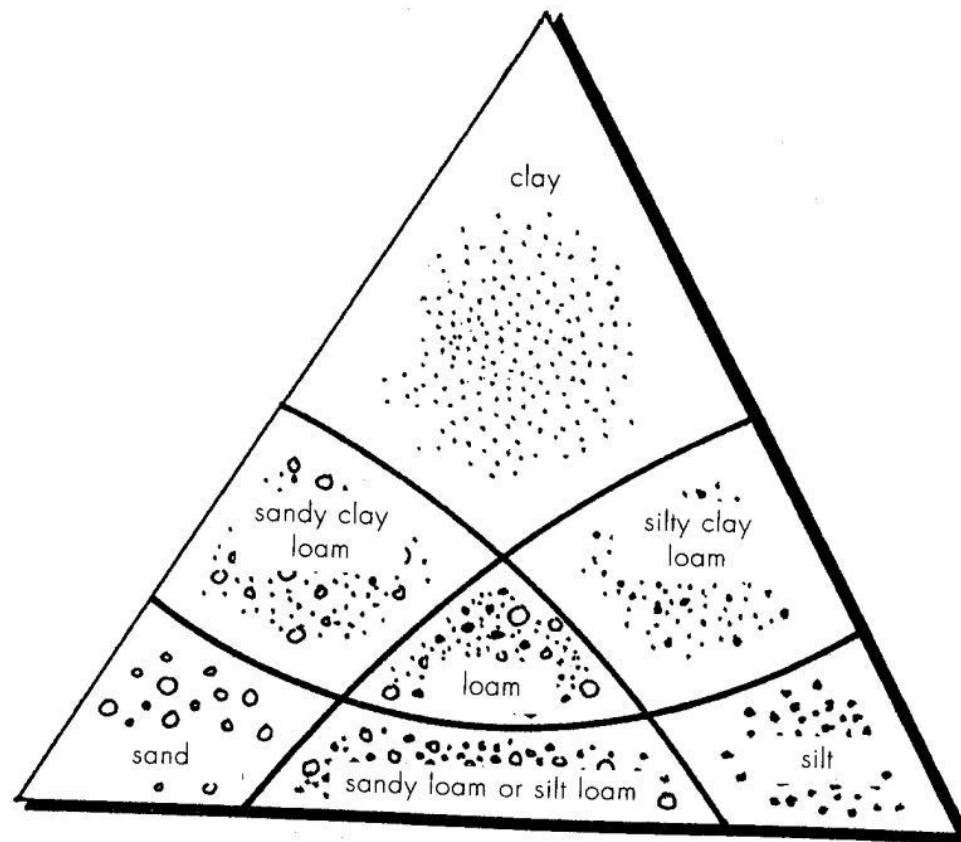
- Soil composed of
  - Solid particles (both soil particles and organic material)
  - Pore space (fill with either oxygen or water)



# Types of Soil

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- Sand
- Silt
- Clay
- Loam



# Parker County Soil

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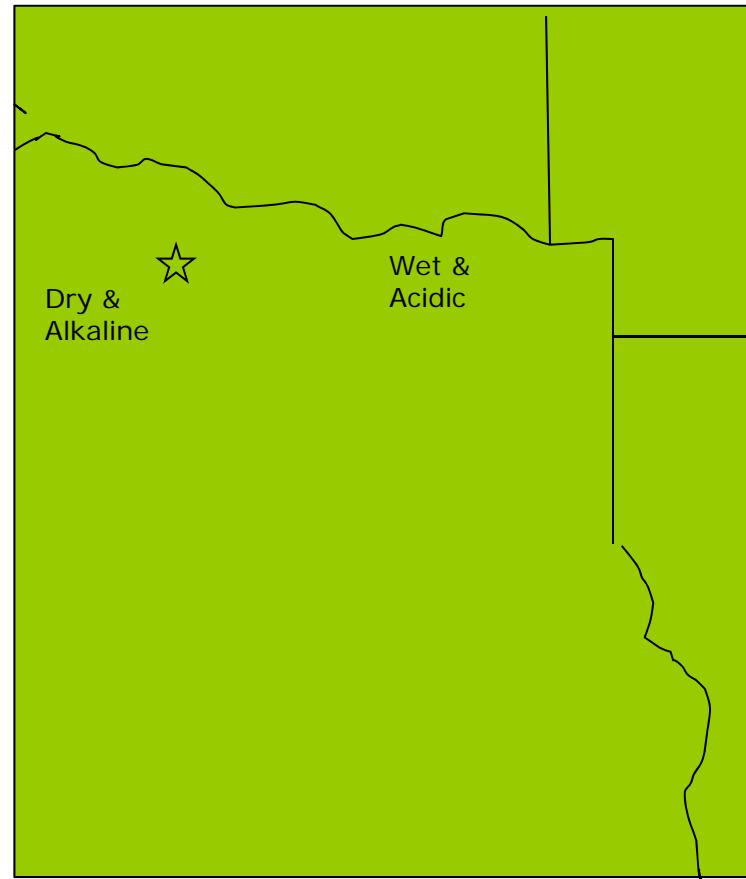
## Classic Southern Gardens

- ✓ Acid Soil
- ✓ Deep Soil
- ✓ Rain, 45 inches or more

## Parker County Conditions

- ✓ Alkaline Soil
- ✓ Shallow Soil
- ✓ Sand, Clay, Caliche, Sandy Loam
- ✓ Rain, 30-33 inches

## Where the West Begins



# Sand Characteristics

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## □ Sand

- 60% sand, 20% silt, 20% clay
- Sand particles vary in size
- Feels gritty between fingers
- Easy penetration of both water and air
- Drains quickly, may have to add organic matter to hold moisture and fertilizer so it doesn't wash away.
- Low levels of organic matter because it breaks down quickly in sand
- Quick to warm up

# Loam Characteristics

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- Loam
  - 40% silt, 40% sand, 20% clay –ideal balance of soil particles
  - Feels crumbly, gritty
  - Easy to work
  - Good balance of water and air
  - Rich in humus
  - Good structure and texture
  - Ideal soil type

# Clay Characteristics

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## □ Clay

- 60% clay, 20% silt, 20% sand
- Very small particles
- Feels smooth, sticky when wet
- When dry, rock hard lumps (surface cracks)
- Difficult to amend
- High risk of compaction
- Very tiny soil pores leads to poor aeration in root zone
- Holds water too well, saturated soil leaves no space for air
- Drainage issues
- Slow to warm up in early Spring
- Begging for organic material

# Soil Texture, Structure and Depth

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- Texture – describes the size and feel of the soil particles. Texture depends on the relative amounts of sand, silt and clay.
- Structure - describes how the soil particles are grouped together or arranged to form pieces. Soil structure is closely related to air and water movement within it.
- Soil Depth – the vertical distance into the soil from the surface to a barrier (rock, sand, heavy clay).

# How to Manage Soil Texture, Structure and Depth

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- ❑ The easiest way to improve soil texture and structure is to add LOTS OF ORGANIC MATTER
- ❑ Raised Beds – soil depth < 10 inches is very shallow



# Organic Matter

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- Organic matter is the remains of plants and animals that were once living.
- Organic matter needs to decompose to feed the soil.
- Once broken down into humus it becomes available food for growing plants.



# How much organic matter?

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- Measure the area you want to cultivate ( $l \times w$ ) to find the number of square feet
- 2 inches
  - 1 yard = 160 square feet
- 3 inches
  - 1 yard = 100 square feet
- 4 inches
  - 1 yard = 80 square feet



# Bed Preparation

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## □ Drainage Test

- Dig hole 12X12, 18" deep
- Fill with water- let drain
- Fill again and clock drainage time in hole.  
Should drain 1 inch per hour.



**Results may require moving planting site,  
raising bed, or installing french drain.**



# Bed Preparation

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- Destroy existing vegetation
- Rototill or spade (6-10 inches) & add 3 inches organic matter
- Repeat tilling until particles are desired size, remove rock, weeds, etc., (as you work, add fertilizer according to soil test results and expanded shale if working clay soil)
- Rake smooth and slope edges down to aid drainage
- Choose edging material if desired

# Recommended Soil Amendments

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## ❑ **Organic amendments**

Compost

Composted Manure

Chopped Leaves

Leaf Mold

Hay, straw or alfalfa

Peat moss

Green manures

Humus

Cottonseed Meal



## **Apply three inches of amendments**

Add Expanded Shale (non-organic) to clay soil before mulching

# Benefits of incorporating organic matter into your soil

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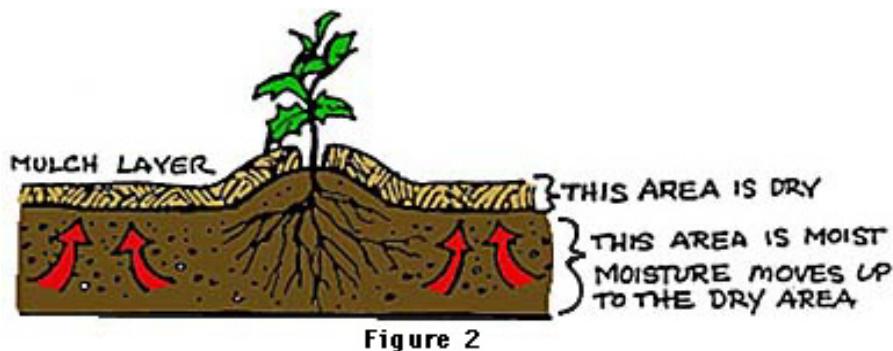
- Improves soil's ability to absorb water
- Aerates soil, increasing pore space
- Provides food for beneficial organisms
- Supplies nutrients in slow release form
- Reduces fertilizer requirements
- Improves structure and drainage
- Reduces soil erosion
- Suppresses harmful soil organisms
- Helps keep soil cooler in summer, warmer in winter

# Mulch

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## □ Benefits

- Living mulches add organic matter
- Regulates soil temperature
- Conserves moisture
- Reduces run off and erosion
- Weed Control



# Mulch

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## Organic

- Cedar
- Pine Bark
- Pine Needles
- Cypress
- Hardwood
- Straw
- Pecan
- Newspaper
- Shredded leaves

**Non-Organic** (commercial growers)  
(we don't recommend)

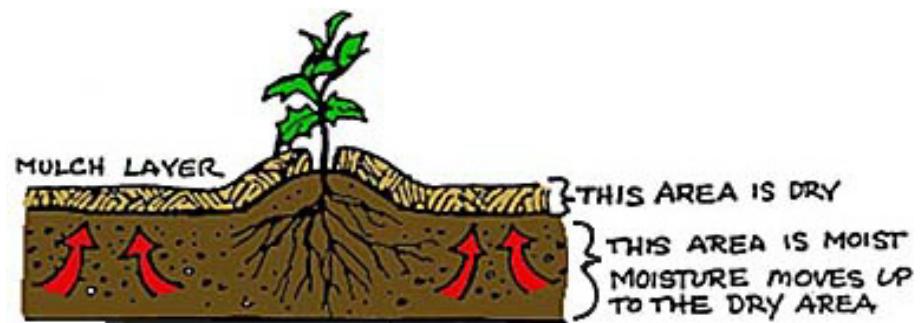
- Black Plastic
  - Weed control - Except Nut Grass
- Clear Plastic
  - Seed Germination



# Mulch

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- **How much to use**
  - 2-3 inches initially



- **How often to apply**
  - 1 inch per year – decomposition occurs

- **Do not choke the base of the plant with mulch**
- **Do not work the mulch into the soil the way you would compost and other amendments**

# EarthKind Soil Management Summary

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- Soil Test
- Understand soil pH
- Base fertilizer program on soil test report
- \*\*Pay attention to our ENVIRONMENT!!

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Remember, it takes about 1000 years to create one inch of topsoil and only ONE DAY for a bulldozer to remove it!



Make every effort to take care  
of your soil!



Stay and Enjoy  
Gardening in Parker County