EarthKind™ Soil Improvement

Great gardens start with great soils. A great soil is one that water easily will infiltrate, yet holds moisture. Our clay soils are often compacted, water will run off, and once wet they stay too wet. Sandy soils often drain too quickly and need watering frequently. Working in compost can improve all soils by adding aeration and nutrients to clay soils and adding nutrients and water holding capacity to sands. Many snake-oil salesmen have hawked products to improve drainage by spraying or applying a product on the soil. All these products really help is the person selling the product.

Soil structure is built by digging and incorporating organic matter into the soil. Maintaining organic mulches on the top of amended soils will also provide long term benefits.

Benefits of EarthKind™ Soils

- little to no water is needed once plants are established
- additional fertilizer will not be needed for plant growth

EarthKind™ soil improvement was developed at Texas A&M by Dr. Steve George's research with the goal of gardening with less water and less fertilizer. They have found that by following their soil development methods – roses, vegetables and perennials could survive without supplemental water once they were established. They also found that these crops could be growth without additional fertilizer. How is this done? By building the soil and not just treating the soil.

This is a system of not amending the planting hole, but growing in planting beds and amending the entire planting bed. Once built, these beds will be slightly raised from the ground level due to the amount of soil amendment.

Always start with a soil test and adjust the pH, phosphorus and potassium content (if needed) prior to working the soil. You've got one good chance to make these changes and that is when working the soil.

Next, work or hand dig the soil to a depth of 6 inches to remove compaction.

For clay soils - incorporate three inches of **expanded shale** (3/8" particle size) into the top six inches of soil. If using a bagged product, lay the bags end-to-end on the ground and pour them out as they lay. Do not spread. It needs to be 3 inches deep. Work it in six inches deep. This will add greatly to infiltration of water and rainfall and will allow for deeper rooting than in compacted soils. Expanded shale is available in both bulk and as a bagged product. Ask for it at your garden center.

Compost is an essential amendment to both sand and clay soils. It holds moisture in loose sandy soils and slowly releases nutrients in all soils. Work a minimum of three inches of fully finished compost into your EarthKind™ soil.

Crops grown in EarthKind™ soils all benefit from maintaining a three inch mulch with arborist chips. This is a very low grade of woodchip that still has green bark attached to the stems and has fresh green leaves among the chips. Gardeners will notice a wonderful black humus that develops right under the chips in plantings that are maintained continuously with a layer of these arborist chips. As this breaks down it adds nitrogen to the soil. Earthworms will move this nice black humus into the rootzone of the garden plants. Keep replenishing the mulch whenever the ground is exposed.

Building EarthKind™ Soils

- **Clay** soil improvement

1. Adjust pH, phosphorus and potassium levels according to soil test results
2. Work soil 6 inches deep
3. Apply 3 inches of expanded shale (3/8" diameter)
4. Work into top six inches of soil
5. Apply 3 inches of compost
6. Work in 6 inches deep
7. Plant desired roses, shrubs, perennials, vegetables
8. Mulch with 3 inches of arborist chips

- **Sandy & Loam** soil improvement

1. Adjust pH, phosphorus and potassium levels according to soil test results
2. Work soil 6 inches deep
3. Apply 3 inches of compost
4. Work in 6 inches deep
5. Mulch with 3 inches of arborist chips

EarthKind™ Soil Demonstration at Sedgwick County Extension Arboretum, at electronic sign, corner of 21st & Ridge in Wichita, KS

A demonstration of the EarthKind™ soil improvement system was installed in the spring of 2008 at the Sedgwick County Extension Education Center. We are comparing the expanded shale from Texas (that was used in all of the preliminary EarthKind™ research by Texas A&M) to the Buildex brand of expanded shale that is mined and produced in Kansas. We are also showing two different particle sizes of the Buildex product. Both of which are similar to the Texas product. Prior to doing this demonstration, we have been building raised beds using a locally commercially produced compost product that was applied to a depth of 8-12" deep. We were getting the same results from this method (as the EarthKind results from Texas) with results of excellent infiltration of water, little to no need of supplemental watering of roses and little need for fertilizing.

The four tests started in 2008 are:

- 1. Three inches of compost, worked into the top six inches of soil
- 2. Three inches of compost + three inches of expanded shale (Buildex brand-Kansas source, ¼ x 1/8 inch diameter) worked into the top six inches of soil.
- 3. Three inches of compost + three inches of expanded shale (Buildex brand-Kansas source, 3/8 x 1/4 inch diameter) worked into the top six inches of soil.
- 4. Three inches of compost + three inches of expanded shale (Living Earth brand – Texas Source – 3/8 inch diameter) worked into the top six inches of soil.

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