

7 Keys for Developing Wonderful Soil

While maximizing your farm's carbon sequestration

Sequestration is THE secret for developing highly structured soil.

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Adapted from <http://www.ag-usa.net/7keys.php>

Key 1 - Limit cultivation

When soil is tilled, it disrupts all soil life forms, especially mycorrhizal networks.

Mycorrhizal networks effectively :

1) sequester carbon, and 2) acquire and deliver nutrients to plants.

Therefore, no-till or minimum tillage works best.

Key 2 - Keep the ground covered

When soil is left bare, soil structure declines because soil aggregates break down. Aggregates are soil particles bound together to create air gaps. Without benefits of these aggregates:

-- the amount of organic nitrogen available to the plant is limited

-- microbial growth is hindered

--soil gets hotter and drier

When soil is covered with plants, soil structure improves because soil aggregates can form, thanks to microbes and organic matter.

Utilize cover crops to:

--reverse this process of soil collapse

--help conserve moisture

Cover crop varieties with deeper roots help take liquid carbon deeper to improve soil structure.

Key 3 - Diversify

Crop rotation and cover crops both help to diversify the types of microbes in your soil food web.

Key 4 - Avoid chemical applications

Herbicides, fungicides, and insecticides are killers and disrupt soil biology. Every chemical application hinders the development of healthy soil.

Key 5 – Keep grass a good length



A photo from a research station showing the root growth of bunchgrass plants that were kept clipped at various lengths

How short grass is cut directly affects the depth of the root system of that grass. To stimulate a larger root system, it is best not to cut or graze the grass too short.

To help solve this issue with livestock, use rotational grazing, and move cows frequently. Practice high-density, short-duration grazing accompanied by appropriate rest periods. This helps improve soil health by building the soil's desirable fungal dominance and thus fostering better humus formation.

Key 6 – Create “friendly” soil

Help the soil food web to thrive by:

- Avoiding use of toxins
- Remediating any salt buildups
- Balancing nutrients and pH in the soil
- Avoiding compaction

(Advertisement from the website)

A product that claims to be the 7th key to soil health:

Key 7 - GroPal Balance (GPB) *quoted from the website* www.AG-USA.net

Although keys 1-6 support the process needed for carbon sequestration, GroPal Balance (GPB) is the real secret. It helps to accomplish all of the following, which all work together for maximum carbon sequestration:

- GPB helps to devour toxins, remove compaction, and remediate salts.
- It helps to restore balance to the soil, including pH.
- It inoculates the soil with N-fixing bacteria, 70 aerobic bacteria, mycorrhizal and other fungi.
- It feeds these microbes and helps them get established in the soil.
- It helps to raise the energy (ergs) in the soil.
- It replaces lime and other fertilizers.

It is listed with by WSDA for organic use.