

AGRISECURE – SOIL HEALTH OVERVIEW

January 2019

THE IMPORTANCE OF SOIL HEALTH

The Foundation of Crop Health	Break the Weed Cycle
Soil is the plant's stomach, which is itself a living organism. Soil health has a direct impact on plant health – start by building a solid foundation	Healthy soils result in healthy crops, which are better able to fight disease & stress – and minimize the opportunities for weeds to take root.
Nutrient Supply	Grow Nutrients
Healthy soils will provide critical nutrients to the crop – and balance is the key.	Crop rotations, cover crops, and minimizing tillage all allow biological soil activity to make nutrients more available to the crop – for free.

TEN KEYS TO BUILDING SOIL HEALTH IN AN ORGANIC SYSTEM

1. **Get a Baseline & Build a Plan** – conduct regular soil nutrient tests (never more than 6.75" deep) and update your plan based upon the data.

NOTE: not all soil labs are the same, be sure you know what your lab is testing for and how they test.

2. **Start with Balance** – assess how many acres you can achieve balance in each year and build a plan based upon what's possible. You can't expect ½ a roof to keep you dry, and you also can't expect ½ balance soils to increase yields.

NOTE: AgriSecure recommends starting with your best acres first.

3. **Build Organic Matter** – Even with tillage, measurable increases in organic matter can be achieved with a multi-faceted year-long strategy that includes: cover crops, crop rotations, introduction of litter, etc.

NOTE: multi-species off-season cover crops coupled with a mix of winter and spring annuals will allow your soil microbes to transform inorganic minerals into organic minerals that plants roots can absorb through carbonic acid exchanges.

4. **Eliminate Stress** – Identify the limiting factor(s) of your soil (e.g., what's missing or too low) and address it first. Unbalanced soils can lead to more weeds and insect problems in your plants.

5. **Balance Key Nutrients** - Too much can be just as detrimental as not enough, so watch for total nutrient balance. Start with Calcium / Magnesium balance with a target of a 68 / 12 ratio., with this other macro nutrients will be utilized more efficiently.

6. **Integrate Cover Crops** – as noted above cover crops provide multiple benefits for soil health, including: supporting biological activity, building the nutrient profile (e.g., nitrogen), and minimizing opportunities for weed development.
7. **Don't Over Apply Manure** – all manures need to be tested so they are not over applied, with special attention being paid to Phosphorus and Calcium. For example, laying hen litter can be high in calcium and over application can cause real problems.
8. **Consider Soil Health with Rotation Planning** – Long-term planning with pay off. Try to achieve a balance in rotations with legumes, solid seeded crops, nitrogen consumers, and off-season cover crops.

NOTE: Keep living roots in the soil as much as possible in the off season.

9. **Till with Purpose** – Right amount, right time! To prevent weeds, work the soil shallow and fast as it will minimize damage and the soil will recover quickly (if it's healthy).

NOTE: Weeds in the white root hair stage require minimal soil disturbance and effort to eliminate!

10. **Healthy Soils = Happy Farmers** – The soil is your family's most important asset. Continuous investment and focus will take your family farm into the 10th generation!