

What is the current condition of your soil? Is your soil in balance? What can you do to help the soil in your pastures? If you do not know the answers to these questions, it is time to test the soil health of your pastures. Over the past couple of weeks we have talked about the importance of soil testing, and how you can use that information to help determine if the soil health is where it needs to be. But, in order to best manage the soil, it is important to understand what nutrients are present- or lacking- in your soil. This week we will discuss this, and talk about the important roles that these nutrients play in soil health.

When you take a soil sample to be tested at a lab, you will need to indicate which nutrients you want to test for. Most labs have a number of tests to choose from, ranging anywhere from the basic “routine analysis”, to the more thorough analyses that can measure micronutrients, salinity, organic matter, and more. The more detailed tests can provide the producer with more information, leading to the potential of making better soil management decisions. However, many producers get along just fine with simply having a basic test done. Most basic tests reveal the pH, Phosphorus (P), Nitrogen (N), and Potassium (K), of the soil, but you may find it helpful to add in organic matter as well to have a more thorough analysis of total soil health.

One of the most well known aspects of soil health is the pH. This is the measure of the soil’s alkalinity or acidity. pH is important because it greatly influences how easily the plants are able to absorb nutrients from the soil. Phosphorus regulates the protein synthesis, which is critical for cell division and development of new tissue in the plant. Nitrogen is also greatly required for production of forage. Nitrogen in the soil is needed for vegetative growth and photosynthesis, and is required in periods of rapid growth. Potassium also plays a big role by regulating CO<sub>2</sub> uptake. It is this respiration uptake that crops, microorganisms, and soil animals need to sustain life. Potassium also aids in the plant’s ability to withstand drought, pests, and extreme temperatures. Organic matter, a biological indicator we talked about last time, provides nutrients and a habitat for organisms that live in the soil. Organic matter also binds soil particles into aggregates, which helps improve the water holding capacity of the soil.

Although we only discussed a few of the nutrients present in soil, you can see that they each have an important role to play in ensuring that your soil is healthy. Because of this, it is important that no nutrients are shortchanged. Have the soil tested to find out which nutrients, if any, are lacking, and then take the steps necessary to improve it if needed. Remember that although most labs test for these things, different labs tend to use different numbers. Proper interpretation of these numbers is what is most important. If you have any questions about soil nutrients, please contact us. Visit the links below to see the references used in this week’s article.

<http://www.noble.org/ag/soils/roleofpotassium/>

<http://soilquality.org/indicators/respiration.html>

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