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Category 2

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## **MICROBES...**

### **THE REAL ROOT OF IT ALL**

Where do you think the true foundation of agriculture lies? I believe it can be found under foot, deep within the soil. It is the organic matter and the microbes that feed on it which spark the growth of every living thing planted within. If we, the American farmer, are expected to feed the ever growing population of the world, do we not need to dig a little deeper into the controllable aspects of farming and ranching? What better place to start than the soil where it all begins.

Only recently have the trade magazines and industry publications began to focus on the importance of soil and its components. Today every major agricultural publication is touting improvement in the health of our soil, and the increase of the microbes within it, as a miraculous new discovery. Although soil biology is a relatively new science, the importance of the health of the soil has been known to the producer for centuries. He may know little about the decomposition of organic matter by soil organisms and its immense influence on soil fertility, plant growth, soil structure, and carbon storage, but he understands the effects soil biology has on his pocket book.

Due in part to this newfound interest some scientists are working diligently trying to analyze the complex system of plant growth as it refers to soil. They are trying to understand how root, soil, and microbe interactions work. They have begun to study the increase in fungi and microbes, through the promotion of root system growth. Until now they have focused on new chemicals and seed modifications to improve growing of our crops and pastures. And, although these are extremely important factors, soil must be revered as the real foundation and improvements to its health critical.

This revolution has seen some real successes. Rotational grazing provides numerous benefits including environmental, parasitic reduction, and reduced forage storage. The use of cover crops has been found to improve soil structure, increase soil organic matter, reduce erosion, and improve weed suppression. The forage potential of cover crops is an added benefit.

When you can graze that ground, previously left bare between planting seasons, you not only get a new source of forage, but the benefit often realized with intensive grazing management... natural fertilizer. The deterioration of the cover crops and the livestock waste produced by grazing, feed the microbes, encouraging their multiplication. Increasing microbial action has been proven to improve soil, ultimately raising yields. As for improving the health of pastures every good grazer knows permeable soil, containing high organic matter, holds more water. This is becoming extremely important with the ongoing effects of drought stress and climate change.

Conducting extensive soil testing and working with your local agronomist is the first step to sustainable agriculture and the stewardship of our soil. Whether you are a rancher utilizing intensive grazing management or a farmer planting cover crops, conserving the soil and ultimately the microbial population within it, is the real root of it all.

**Word count: 500.**