

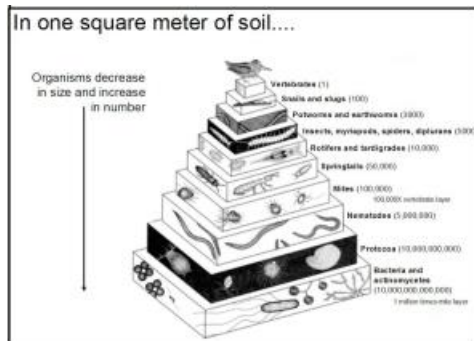


EARTHGEN215, LLC

January Newsletter

Soil Condition is an Essential Factor for its Potential Production

Crop production (including hay production) requires proficient functions of soil biology, soil chemistry, and even some physics. Crop production is optimized when these soil functions work synergistically, thereby maximizing photosynthesis efficiency and fueling. Applying the Biological Products EarthGen215 distributes as recommended can enhance that synergistic production.



Soil biology assesses soil organisms' interactions with soil and with each other. It also studies the respective roles of various species of earthworms, arthropods, and countless varieties of microscopic soil organisms. The graphic below shows estimated numbers of various micro and macro-organisms in one square meter of soil. One square meter equals about 10.76 square feet. These living organisms infuse soil with oxygen and a balance of all other nutrients needed to produce crops. Collective efforts of living soil organisms create humus out of dead matter in soil. The work of living soil organisms transform soil into nutrient and moisture reservoirs for

each growing season.

Decomposition and other activities of beneficial organisms build soil humus and improve soil structure. Consistent applications of the Biological Products EarthGen215 distributes usually boosts the populations of beneficial soil organisms, and their corresponding increased activities enhance soil structure improvements. The quantity of soil humus indicates soil organisms' decomposition activities. Humus levels also correlate with levels of active soil carbon. Active soil carbon is a rich, dense source of food and energy for soil microbes. It is the portion of carbon material in soil that is actively decomposing.

Activities of beneficial soil organisms usually increase soil temperatures in early spring and late fall/early winter months, prolonging opportunities for humus and soil structure building.

Generally, the higher the humus level the higher the level of beneficial soil organisms, the higher the level of active carbon, and the greater the soil's capacity for holding moisture and all nutrients necessary for producing intended/planted crops.

EarthGen215's application recommendations consider soil texture and nutrient content from parent materials. Information about these soil traits, are gleaned mostly from laboratory analyses and reports (i.e., Midwest Laboratories in Omaha, NE). Analyzing these soil traits is mostly a function of soil chemistry.



Birds of prey often help control populations of field mice, gophers, and other vertebrates that dwell in fields.

EarthGen215's recommendation protocols are designed to bring levels of soil cations within or at least towards certain base saturation ranges. Cations include calcium, magnesium, potassium, and sodium. Calcium base saturation at or between 70% to 75% is ideal, however going outside that optimal range, as low as 60% or as high as 80% is functional. Magnesium base saturation usually is optimal at or between 12% and 15%. Magnesium base saturation as high as 18% can be functional. Potassium base saturation at or between 3% and 5% is optimal. However, potassium base saturation as low as 2% can be functional, and higher than 5% is preferred when corresponding sodium levels are high. ECS always wants potassium base saturation to be higher than

sodium base saturation. Ideally, sodium base saturation is lower than 1%. Levels of these cations (especially Ca, Mg, and K) influence the level of soil pH more than any of the other elements. When within these desired (optimal) ranges, or moving towards the optimal ranges, all other soil nutrients tend to become more plant available and thus more readily assimilated by growing crops.



Healthy, well-structured soil improves efficiency of nutrients' assimilation through photosynthesis processes. Growing crops capture radiant heat from the sun along with atmospheric carbon dioxide and hydrogen, then assimilate these components into a life-giving sugary liquid. Approximately 95% to 98% of the nutrient's crops need to grow, mature, and produce, can be and ideally are derived from nutrients in the atmosphere, primarily via photosynthesis. This abundant delivery and subsequent transfers of nutrients are also transfers of energy, and are some fundamental physics on display.

Thank you for reading and please contact your representative that sent you this Newsletter for further information as to how we can help you Reduce your Costs and Increase your Yields.

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