# ACTIVE CARBON AS A SOIL QUALITY INDICATOR

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## INTRODUCTION

A large portion *(50-100%)* of soil organic matter *(SOM)* is bonded onto the mineral matrix of soil. Soil can be defined as a biological entity similar to living tissue with a complex biological reaction. (*Quastal 1946*). According to Jacques Diouf, who served as Director General of F.A.O. *(U.N. Food and Agriculture Organization)* by year 2050, the world population will double. It is estimated that crop production will need to keep pace to prevent world hunger. SOM has declined drastically in the U.S. and all over the world. In the U.S. alone, we lose more than 2 billion pounds of topsoil each year through erosion. Soil is becoming salt-effected and diseased. (*F.A.O. Summary 2011*). Many research findings show that active organic matter (AOM) can be a measure of soil quality. For every 1% of improvement in SOM, growers can achieve $750 dollars per-acre of free nutrients. Furthermore, soil water-holding capacity can increase 2.3% for every 1% OM increase. *(Lawton)* For more than a decade, growers have been improving their soil using humic substances-the by-products of leonardite, (Humic Acid, Fulvic Acid and Humin) biochar, green mineral crops, and compost. These practices will not only enhance soil quality, but our research shows that it assists fertilizer and water-use efficiency by influencing soil's physical, chemical, and biological properties. (*Chen, MacCarthy, Jones*)

## FARMER'S PERCEPTION

In order to create sustainable soil and crop fertility it is very important for the grower to know exactly what happens to soil AOM. Therefore, growers must have an easy and effective tool to evaluate soil quality and improve their crop production. *(Islam, Sundermeier)* In general, for sustainable soil fertility, growers believe and research shows that SOM stimulates naturally