REASONS TO USE ACS IN YOUR CROP NUTRIENT PROGRAM

- **ACS can lead to Long term yield benefits by helping to increase higher biological diversity in the soils.**
- **ACS use will increase nutrient uptake efficiency, lower leaching of nutrients and can lead to elevated nutrient efficiency in the soil.**
- **ACS impact on Organic matter – Elevated soil aggregate stability (humus accumulation) is dependent on energy inputs from: Microbes and Plant roots. If the microbes are not supplied with carbon energy substrates from plant roots, they will break down and utilize soil carbon storage supplies leading to lowered soil aggregate stability.**
- **ACS will provide energy for Mineralization and Immobilization Processes and this leads to maximized exchange capacity and better nutrient availability. (Microbes mine the soil)**
- **ACS will provide energy to soil microbes as they mine nutrients in soils that have been in monoculture or are otherwise damaged.**
- **ACS is a biological feed to improve: Mineralization, Yield potential and microbial diversity.**

ACS is a feed for soil microbes, resulting in increase in numbers, and impacts their activity.

ACS should be used in conjunction with a well balanced nutrient program and with irrigation strategies sufficient to grow the plant.

Soil biological activity must be supported with regular carbon inputs along with other essential nutrients. Healthy plants export significant portions of substrates into the soil solution including: organic acids, sugars, pyrimidines, phosphatides, indole, tartaric acid, oxalic acid, malic acid, citric acid, scopoletin, vitamins, tannins, alkaloids, phosphatides, salicylic acid, purines, nucleic acid and other organic compounds.

Minerals in the soil: Phosphorus, Calcium, Magnesium and others can be made available by both root exudates and products of microbial activity. Bacteriostatic factors in soils that restrict root growth may be overcome by additions of sugars and other carbon based molecules. Organisms utilize sugars, organic acids and starches as food sources.

The soil-plant system is a complex, highly ordered symbiotic "Factory" by which healthy plants select and direct microbe species to mediate the release of soil nutrients. Energy supporting the "Factory" is supplied primarily through root exudates upon which microbes feed. The organisms in the soil rhizosphere produce compounds that are beneficial to the plant.

Injecting ACS at subscribed rates will stimulate and help overcome energy deficit "Gating Blocking Mechanisms" that restrict microbial population growth. This leads to a a priming effect. The "Prime" leads to a rapid elevation in microbial numbers and activity. To achieve elevated soil microbial activity available energy substances must be present along with a balanced soil nutrient profile.

The Key to achieving maximum crop growth is "Balance and Substrate Abundance". If soil physical or chemical systems are out of sync, wide shifts in nutrient uptake, plant root growth and soil biodiversity will occur. Balance is essential to maximize crop production in a given soil.