

*The ACS story begins with sunlight as fuel used by plants to make sugar that ultimately leads to diverse life on Earth...Terra Feed Mission*

### **ACS – SUGAR FOR LIFE**

Many reasons exist for using ACS (Sugars) in soil nutrient and amendment programs. All reasons are tied to the central theme of providing a food "Fuel" to increase microbial "Diversity and Numbers". A large percentage of the sugars produced by plants are exported directly into the soil in the form of plant root exudates to feed the digestive anatomy of the root system along with the other organisms that make up the "Soil Factory".

Life on Earth could not exist without a diverse population of microbes. Life on Earth could not exist without; water, oxygen, sunlight, green plants, soil and microbes. Soils are less productive when the microbial populations have been diminished because of: poor environmental conditions, poor cultural practices, toxins are used for weed/pest control (collateral damage negatively impacting soil life forms), soil aggregation disruption when poor tillage or rotation practices are used, inadequate irrigation, or when soil lies fallow for extended periods. Our soils are alive and need to be properly managed and fed...

In a nut shell, the energy substrates that sustains life both above and below the ground are "Simple Sugars". The basic energy concept begins when plant leaves capture sun energy (photons) and convert this nuclear generated energy into chemical energy (ATP, NADPH<sub>2</sub>, etc.). These molecules provide energy for cellular metabolism to produce and maintain the building blocks used in sustaining life. Glucose is used in a cycle (Kreb Cycle or TCA cycle) to yield ATP, a primary cellular energy molecule. "Glucose" is produced when Carbon Dioxide is combined to make hexose. During the photosynthetic process we get another basic substance needed for life, "Oxygen". The glucose that is produced by photosynthesis is used as a fuel to build more ATP from ADP. Hence...the cycle is a domino event set in place when sunlight strikes a leaf...

Energy production begins with a simple photosynthetic mechanism and leads to the basic concept of light energy captured to yield sugar and oxygen from carbon dioxide and water. The Sun provides the energy ultimately allowing for the production of sugars that fuel life on Earth. Hydrogen fusion on the sun sitting 93,000,000 miles away provides the energy and plants on Earth convert this to energy substrates that feed all organisms on the planet.

There is nothing mystical or magic about ACS. It is a source of sugars that are produced by the same light-leaf mechanism that delivers fuel for the whole planet. Sugars fuel the cycle of life that drives the interactions between the; sun, environment, water, microbes and plants yielding stable life on Earth.

Regards,

Buford and Eddie  
Terra Feed, LLC