OMRI™
Listed

"ORGANIC"

SUPER HUME™

HUMIC ACID CONCENTRATE

GENERAL INFORMATION:

History

Humus is a term that dates back to early Roman Civilization. The importance of humus is not a recent discovery. Soil fertilization in early agricultural practices was based on the recycling of organic waste , and the addition of decomposed organic materials to improve plant growth. Only recently through modern science breakthroughs, has the ability been developed to accurately measure and identify the different humus components. Some of the components are listed under terms- Humus.

Humus has been referred to as " The most important source of human wealth on this planet". It is a virtual storehouse of not only micro-nutrients, but also, holds the essential macro-nutrients nitrogen, phosphate, and potassium. The most important and bio-chemically active group of the many decomposed products of soil organic matter, is the alkali soluble substance called **Humic Acid.**

Super Hume™

In the footsteps of science and nature, United Agricultural Services has developed one of the highest quality Humic Acid concentrate in the United States. **SUPER HUME**™ is a highly concentrated form of liquefied organic Carbon derived from the highest quality humate source, Leonardite. Leonardite is mined in the North Central United States and is considered to be one of the highest quality humic acid source available.. The end result of any composting process, natural or otherwise, is Humus. All organic matter eventually decomposes - "bio-degrades" - to Carbon, which is one of the most important elements in the soil. Simply stated, the amount of Carbon in the soil, or "the organic matter content," dictates the fertility of that soil. **Super Hume**™ with its unique characteristics, is a necessity to any fertilization or crop program. It is acceptable by the OCIA standards as "organic"

Why include **Super Hume**™ in the soil

** Will help to increase the CEC of the soil.*
** It will increase the holding capacity or retention ability of the soil for holding water.*
** It will also increase the transfer of fertilizer, by preventing excessive leaching away from the root zone and ultimately releasing it to the root zone as needed.*
** Super Hume will also help to reduce soil erosion by increasing cohesive forces of very fine soil particals.*
** will change the physical and mechanical properties of the soil in structure, color, consistency, and moisture holding capacity to a very great degree.*
** will increase the permeability of plant membranes , promotes the uptake of nutrients more efficiently.*
** improves the growth of various groups of beneficial micro-organisms.*
** buffer pH problems, allowing plants to survive until the pH can be corrected.*
** decrease stress deterioration. Until it can be corrected.*
** increases the germination capacity of seed.*
** increase and enlarge root systems and plant cell division*
** Aids in correcting plant chloroses.*
** will help to intensify the Enzyme systems increasing the metabolic and/or other chemical changes inside the plants living cells.*
** will releases various types of auxins responsible for plant growth.*
** known as an organic catalyst helping to speed up the rate of chemical reactions within the plant.*
** will provide an environment that will not allow some weeds to grow.*

Super Hume's™ indirect effect on the soil can be significant. Micro-nutrients ie, iron can be made more

available to plants. Inorganic iron compounds tend to become more unstable in the soil. Super Hume can incorporate iron into a Chelated form,. making it available for plants to pick up. **Super Hume**™ will also react with natural phosphates in the soil. These phosphate ions which because of chemical reactions with iron and aluminum in the soil can be fixed or bonded to organic matter and become unavailable. **Super Hume's**™ chelating agents can break this bond and make the phosphate ions available to the plant root systems more rapidly. Super Hume's natural agents will also help to regulate rapidly changing hormone levels of plants going through stress. ex, drought , heat , and transplanting.

Super Hume's™ **component Humic Acid**

Super Hume™ in a sandy soil environment with a low organic matter content, will indirectly react with some pesticides. These complex interactions can immobilized some pesticides and practically make them disappear from the soil environment. Another method is called absorption, followed by a release of substances to the soil solution. The amount of release will depend on the chemical rate of degradation of the pesticide. The third and final release involves the Humic Acid to complex with certain compounds in the pesticide, which can then be absorbed by the plant roots. Humic Acid can help to control the toxic chemical levels within the soil.

Super Hume™ will also help to increase nitrogen uptake by plants and increase soil nitrogen utilization efficiency. It will also encourage the uptake of potassium, calcium, magnesium, and phosphorus. **Super Hume**™ is capable of chelating and retaining soil nutrients in an exchangeable form to be made available for plant growth as required. This high organic carbon compound stimulates: root growth, plant growth and organic microbial properties of the soil. In short, the higher the organic matter content of the soil, the more minerals and nutrients are unlocked and made available to the plant. The higher the organic matter of the soil the higher the ion exchange capacity.

Terms*

Humus is the final decomposed stage of organic matter. It consists of the numerous chemical substances such as, water soluble sugars, amino acids, proteins, lignin (originally part of plant cell walls), fats, carbohydrates, and water insoluble humic acid.

Humic Acid is a structureless colloidal material that has gone through decomposition (Humification). Derived mainly from plant residue and manure.

Organic Matter* (runs from 1% - to 5% +) consists of living soil organisms and the dead decomposed humus.

Humate* is defined as the salts of humic Acids. Commercially available, in the dry form application is considered a slow release product with application from 250Lbs - 500Lbs to the acre. It must also go through many chemical changes prior to entering the plant system.

Liquid Humic Acid* is an extracted concentrate material derived from dry humate sources. In liquid form they are more readily available and react quickly, compared to the dry form.

CEC* Plant nutrients in the soil solution are in an ionized form. They hold either a positive or negative charge(positive charged is called a cation). Clay and organic colloid particles have a negative charge on their surfaces. These negatively charge particles or colloids (anions) attract and hold on (loosely) positively charged ions. Some cations are held on tighter then others, making them less likely to leech away easily by water. One of the by-products of plant roots and soil organisms is hydrogen which is positively charged. In the root zone plant roots exchange/trade hydrogen for other positively charged plant nutrients. Cation Exchange Capacity or Base Exchange is determined by the holding ability of Clay or humus. The more that can be held the higher the CEC. (see page 21 for a complete definition on CEC)

SUPER HUME™ *liquid is available in 2.5 gal, 5 gal, 30 gal, 55 gal, 275 gal*