

Humic Acid Levels - 4-6%
Fulvic Acid Levels - 0.21%

LIQUID HUMATE

Southern Humates Liquid Humate is energy rich material that is formed in soils during decay over millions of years. The material is known for the beneficial role it plays in stimulating microbiological activity to stimulate plant growth. Humic acid is a group of molecules that bind to, and help plant roots receive, water and nutrients.

High humic acid levels can dramatically increase yields. Humic acid deficiency can prevent farmers and gardeners from growing crops with optimum nutrition.

Humic acids are extremely important as a medium for transporting nutrients from the soil to the plant because they can hold onto ionized nutrients, preventing them from leaching away. Humic acids are also attracted to the depletion zone of the plant root. When they arrive at the roots, they bring along water and nutrients the plant needs.

Positive ions are more easily absorbed by a plant's root because the root has a negative charge. In other words, the positive (cation) is attracted to negative (the living root). Humic acids hold cations (positive ions) in a way they can be more easily absorbed by a plant's root, improving micronutrient transfer to the plant's circulation system. This works because humic acids (ulmic, humic, and fulvic) pick up positive ions and are then attracted to the root depletion zone and to the hyphae micro-tubes of mycorrhizae.

Since the root's negative charge is greater than humic acid biomolecules' negative charge, scientists theorize that the micronutrients are taken up by the plant's root and are absorbed by the plant's circulation system. Some of the micronutrients are released from the humic acid molecule as they enter the root membrane, but we are now realizing that the plant will also uptake some of the lighter molecular-weight humic acids as well. In essence, the humic substances are chelating such cations as magnesium (Mg²⁺), calcium (Ca²⁺), and iron (Fe²⁺). Through chelation, humic substances increase the availability of these cations to plants.

Humic acids are remarkable brown to black products of soil chemistry that are essential for healthy and productive soils. They are functionalized molecules that can act as photosensitizers, retain water, bind to clays, act as plant growth stimulants, and scavenge toxic pollutants. "No synthetic material can match humic acid's physical and chemical versatility." (The Journal of Chemical Education, December 2001)

The main benefit of including Southern Humates humic acid in a liquid foliar application is that the plant will be able to uptake and utilize the nutrients in the solution many times more effectively than without the humates. ... Humic acids increase the water infiltration and water-holding capacity of the soil.

Known Usage - Foliar Spray in agriculture and horticulture

Filtered to 190-197 microns

ENVIRONMENT	Litres/Hectare	Litres/Acre	Comments
PASTURE AND PASTURE CROPS	2.5 - 10	1 - 4	Dilute 1: 200
VINEYARDS, FRUIT TREES, HORTICULTURE CROPS	2.5 - 10	1 - 4	Apply to soil only after bud burst