



### **Humusolver – 16%**

**Humic & Fulvic Acid  
Liquid Concentrate**

**Humusolver – 16%  
is a 16% liquid  
concentrate.**

**OMRI LISTED**

### **Humusolver – 100**

**Humic & Fulvic Acid  
Concentrate**

**Humusolver – 100  
is a soluble powder  
concentrate.**

**OMRI LISTED**

### **Humusolver Granular**

**Humic & Fulvic Acid  
Concentrate**

**Humusolver Granular  
is a granular  
concentrate.**

**OMRI LISTED**

### **Humusolver 7TE – 100**

**Humic & Fulvic Acid  
with Trace Elements**

**Humusolver 7TE-100  
is a soluble powder  
concentrate.**

- Activates and stimulates soil microbial activity
- Increases plant growth and yield by supplying vital humic substances required for plant growth (Humusolver 7TE – 100 also supplies seven trace elements)
- Reduces water use by plants, increases fruit set and quality
- Improves soil tilth/quality (Humusolver 7TE – 100 also improves trace element levels)

## **HUMUSOLVER BENEFITS**

Humates, the decayed remains of tropical rain forests that existed millions of years ago, are highly compressed, natural organic humus. Humate deposits were once buried deeply, but have been exhumed to near-surface conditions and oxidized by bacterial action in exactly the same way as humus is formed in rich agricultural soils. Thus, humates provide a concentrated source of naturally-occurring humus to the soil. Humates have a high humic acid content (humic acid is one of the most biochemically active elements in humus). The minerals and trace elements contained in humates and in the soil are readily available to plants through organic complexing. Adding humates is the most efficient way to increase the humus content of soil as it is highly concentrated and much easier to apply than any other form of humic matter. Also, since humates are completely decomposed, there isn't any nutritional competition with plants for nutrients.

### **Increased Crop Yields**

Humates have been shown to provide a significant increase in crop yields when combined with your current fertilizer program. Humates can improve root development, total leaf area and total crop yields per acre.

*continued on back*



**More from Every Acre, Every Animal & Every Gallon of Manure**

# **HUMUSOLVER BENEFITS** --- *continued*

## **Increased Root Growth**

All tested crops showed consistently increased root growth in length, density and radius. Tests indicate that root system vigor is very important to the nutrient uptake capability of plants, as well as to the plant's ability to combat disease. In addition, plant stability is enhanced, and plants are better able to find and absorb water with a broad based root system.

## **Increased Chlorophyll Content**

Humic matter has been shown to increase the chlorophyll content in plants and can prevent or correct chlorosis.

## **Increased Nutrient Uptake**

Humates have been shown to consistently improve the uptake of nutrients such as nitrogen, phosphorus and iron, as well as innumerable trace elements essential for plant health. This is due to the biochemically active nature of humic acid and its ability to form both soluble and insoluble complexes with various metals, minerals and organics. Nutrients are mobilized in forms that the plants can accept.

## **Improved Plant Quality**

Humates can improve the quality of fruit, vegetables and flowers by improving their physical appearance and, in the case of food crops, their nutritional value. Cereal crops have shown more balanced amino acid content and a higher protein content, which can enhance their worth in the marketplace.

## **Enhanced Natural Defenses**

The biochemically active nature of humic acid works to enhance a plant's natural defenses against toxins and disease. Many toxins are inhibited or neutralized directly by bonding interactions with humic acids. In addition, biologically active compounds (such as antibiotics and phenolic acids) found in healthy humus can enhance plant resistance to some diseases. Finally, plants that are healthy and receive all of their required nutrients are better able to combat disease and pests.

Humus combines with clay minerals to form structural units called aggregates. These help to stabilize the soil and increase its permeability to water and gaseous exchanges. Also, life forms such as bacteria and earthworms that are dependent on humus content, make a large contribution to the maintenance of soil structure. Humate use can prevent soil cracking, which exposes roots to the air and can cause crops to burn in severe heat conditions. Since organic matter is not water soluble, soil with high humus content is less likely to be subject to water erosion.

## **Improved Water Retention**

Humates can hold up to 20 times their weight in water. By enhancing the soil's ability to retain water, humate usage can reduce the need for crop irrigation. This can be especially helpful with sandy soils and contributes a large measure of drought resistance to crops.

## **Differing Soil pH**

Because of the chemical bonding interactions of humic acid, plants are able to grow in soil with more widely varying pH values. In addition, the humic stimulation of microbial activity leads to a healthy soil biota that will ultimately bring the pH of the soil into a more normal range.