



# HUMAX<sup>®</sup>

Liquid Humic  
Acid Concentrate



OMRI  
Listed  
Organic Materials Review Institute

**JH Biotech**  
Biotechnologies for Safer Agriculture

JH Biotech, Inc. Phone: (805) 650-8933 Fax: (805) 650-8942 E-mail: [biotech@jhbiotech.com](mailto:biotech@jhbiotech.com) <http://www.jhbiotech.com>

## GENERAL INFORMATION:

HUMAX is liquid humic acid extracted from leonardite. It consists of a mixture of macromolecules that may increase the uptake of mineral nutrients in plants. Humic acid is the major constituent of humus.

## HUMUS – The Most Active Ingredients of Soil

Organic matter of common soil ranges from 3 to 5 percent by weight, but the influence of this small percentage on soil properties is great. The effect of organic matter on plant growth is mostly attributed to its primary constituent—Humus. Humus is colloid in nature and has high water holding and cation exchange capacities.

The cation exchange capacity of humus ranges from 150 to 500 meq per 100 grams, which is about 10 to 30 times higher than the average soil.

HUMAX is listed by OMRI and is used by organic growers in the industry.

## APPLICATION OF HUMAX

HUMAX can be applied as a soil application through sprinkler or drip irrigation. The humic acid in HUMAX can also be used for transplanting by making a solution for dipping the roots of plants. HUMAX can also be applied as a foliar spray with foliar fertilizers for increased uptake. HUMAX is not a plant food, but is an active part of any good fertilization program.



## Active Ingredients:

12% Humic Acid  
derived from Leonardite.

HUMAX IS NOT A PLANT FOOD INGREDIENT



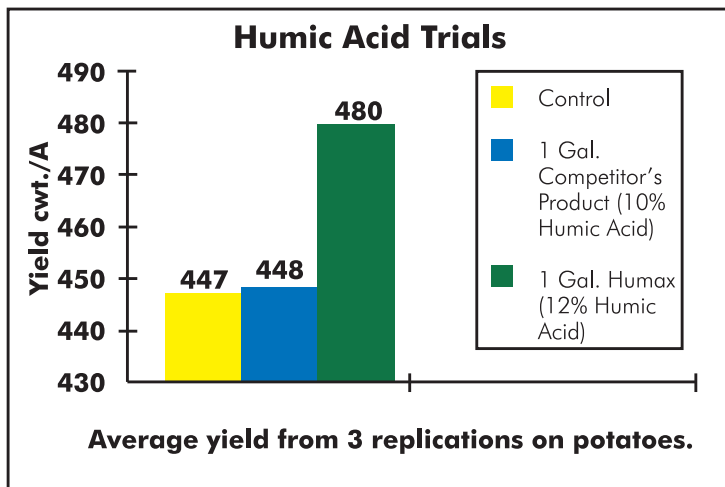


Figure (1):  
The humic acids were added to liquid starter fertilizer at planting of potatoes.

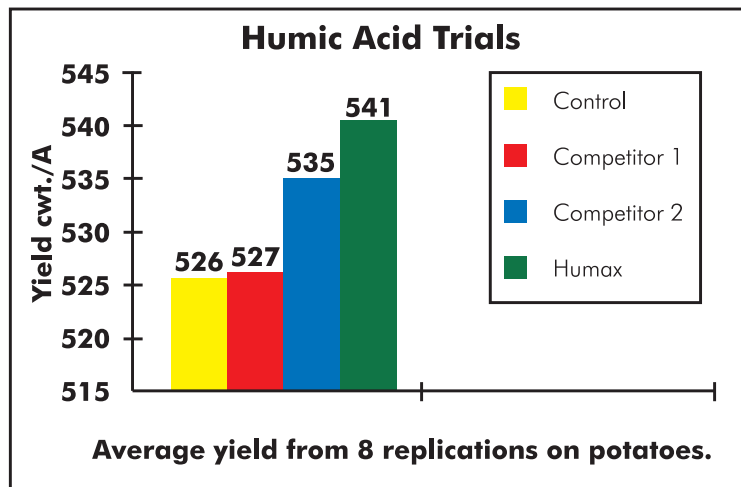


Figure (2):  
One gallon of humic acids were added to liquid starter fertilizer at planting. A second one gallon application of each humic acid was added at first irrigation.

## Independent Research has Shown that HUMAX has the Following Benefits to Plants...

- **Increases Availability of Nutrients**

Humic acid promotes the conversion of a number of essential plant nutrients into available forms by chelating with the nutrients.

- **Promotes Nutrient Uptake by the Plant**

Humic acid and its derivatives, in small amounts, increase the permeability of cell membranes and hence promote the uptake of nutrients by plants.

- **Increases Water Holding Capacity**

The colloidal nature of humic acid allows it to absorb a large quantity of water molecules and hence increases the water holding capacity of soil.

- **Increases Aeration, Tilth and Workability**

Humic acid can increase soil particle aggregation. As a result, it can increase soil aeration, tilth and workability, as well as better water movement.



### References:

Chen, Y. and T. Aviad. "93Effects of Humic substances on plant growth."94 *Humic substances in soil and Crop Sciences. American Society of Agronomy and Soil Science Society of America.* 1990. 7.

Jackson, W.R. "93Organic Soil Conditioning."94

Lee, Y.S. and Bartlett, R.J. 1976. "93Stimulation of plant growth by Humic Substances."94 *Soil Science Society of American Journal.* Mylonas, V.A. 1976. 40:887-879.

McCants, C.B. 1980. "93Effects of Humic and Fulvic Acids on Growth of Tobacco."94 *Journal of Plant Nutrition.* 1980. 2(3):377-393.

Tan, K.H. and Nopamombodi, V. "93Effect of Different Levels of Humic Acids on Nutrient Content and Growth of Corn."94 *Plant and Soil.* 1979. 51:283-287.



**JH Biotech, Inc.**  
4951 Olivas Park Drive  
Ventura, California 93003 USA

For labels and MSDS visit our website at [www.jhbiotech.com](http://www.jhbiotech.com) or phone us at 805.650.8933