

Rates of application of humic substances to the soil and rates of foliar application of humic substances are typically determined by the farmer’s cultural practices and in consultation with local agronomists. Application rates of humic materials resulting in final concentrations in nutrient solutions and soils ranging from 5 to 50 parts per million (ppm) generally increase root mass and uptake of nutrients. These crop responses have been reported in the literature during the last 50 years.

Research Verification

The Humic Products Trade Association (HPTA) has compiled studies of the beneficial effects of humic substances intended for agricultural crop production that meet high standards of experimental design and statistical analysis. Table 1 summarizes the published scientific papers presented as proof of efficacy supporting these label claims. Claimed increases in quality refers to significant increases in parameters that are typically used to determine crop quality, such as crude protein content, specific gravity, grade, thousand grain weight, etc.

Table 1. List of References Supporting Label Claims

Reference	Claimed Increases
Saruhan et al. (2011)	Yield, growth, crop quality
Seyedbagheri (2010)	Yield, crop quality, and uptake of phosphate
Verlinden et al. (2009)	Yield, uptake of Nitrogen, Phosphorus, Potassium, Magnesium
Delgado et al. (2002)	Bioavailability of Soil Phosphorus
Tahir et al., (2001)	Growth, uptake of Nitrogen, Potassium
Adani et al. (1998)	Root growth, dry matter, uptake of Nitrogen, Phosphorus, Iron
Cooper et al. (1998)	Root mass, root length, Phosphorus uptake
Wang et al., (1995)	Bioavailability of Applied Phosphorus
Rauthan & Schnitzer (1981)	Yield and nutrient uptake (N, P, K, Ca, Mg, Cu, Fe and Zn)

Addendum

As some of the authors above discuss mechanisms responsible for the positive effects of humic substances on soils and crops, mechanisms are not discussed here. An in-depth discussion on mechanisms is beyond the scope and intent of this document.

Analytical Method Endorsed By HPTA

On July 11, 2013, the AAPFCO Laboratory Services Committee approved the Single Laboratory Validation (SLV) of the HPTA Method. The HPTA Method is a standardized analytical procedure for the determination of humic acid and hydrophobic fulvic acids in commercial humic products. It also establishes the protocols to detect adulterants. On May 19, 2014 the HPTA Method was published in the Journal of the AOAC. (Lamar, R., Olk, D., Mayhew, L. and Bloom, P.R. (2014) Journal of AOAC International Vol. 97, No. 3, pp 721-730)

About HPTA

HPTA has been organized by member companies which incorporate various types of humic substances in products they create for commercial sale. HPTA’s objective is to be the “standard of excellence” in the humic trade. Member companies have agreed to live up to the Code of Ethics established by HPTA and utilize best practices in their manufacturing processes and company procedures.

For more information on HPTA visit www.humictrade.org or contact us at info@humictrade.org