

COMPARATIVE PROPERTIES DATA SHEET



Terra Ag
Technologies®

ORGANIC PLANT & SOIL PRO2™

Comparison with Humics

Comparison Factor		Organic Plant & Soil Pro 2™	Fulvic Acids	Key Advantage
1	Nutrient Composition	Contains amino acids, humic and fulvic acids, organic acids, enzymes, antioxidants, and nanocatalysts providing complete nutrition.	Contain only low molecular weight organic molecules, missing amino acids and enzymes.	Balanced composition ensures longer and stronger effects.
2	Molecular Structure	Balanced matrix combining multiple organic molecules for efficient nutrient transport and cellular permeability.	Very small molecules; high mobility but short duration of effect.	Sustained molecular stability for continuous absorption.
3	Absorption and Mobility	Fast foliar and root absorption; creates amino-chelates and carboxylates for maximum mineral uptake.	Quick absorption but fast leaching; low persistence in plant tissues.	Maintains nutrients active longer in plant tissues.
4	Microbial Activation	Strongly stimulates soil microbiota, rhizobacteria, and mycorrhizae activity enhancing nutrient cycling.	Mild microbial activation without sustainable community growth.	Rebuilds living soil ecosystems naturally.
5	Photosynthetic Rate	Increases chlorophyll content and enzymatic activity, improving photosynthetic rate by 15–25%.	Can slightly increase photosynthesis but short-lived effect.	More durable increase in photosynthetic and metabolic rates.
6	Fruit Yield and Quality	Produces higher fruit set, size, and color uniformity; increases yield by 20–45%.	Initial vigor improvement but no long-term yield impact.	Improves yield stability and fruit quality substantially.
7	Soil Regeneration	Enhances organic carbon, soil structure, and water retention year after year.	Do not rebuild soil structure or increase carbon storage.	Restores soil carbon and sustainability capacity.
8	Overall Efficiency	Delivers complete plant response with measurable ROI and long-term sustainability.	Temporary response: frequent reapplication required.	Long-lasting, regenerative efficiency.

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Comparison with Fulvics

Comparison Factor		Organic Plant & Soil Pro 2™	Fulvic Acids	Key Advantage
1	Nutrient Composition	Full spectrum with amino acids, fulvic and humic acids, enzymes, and nano catalysts for synergistic action.	Contain only low molecular weight organic molecules, missing amino acids and enzymes.	Balanced composition ensures longer and stronger effects.
2	Molecular Structure	Optimized molecular balance combining small and medium weight organics for durable transport.	Very small molecules; high mobility but short duration of effect.	Sustained molecular stability for continuous absorption.
3	Absorption and Mobility	Fast and stable uptake via roots and foliage; maintains nutrients in plant longer.	Quick absorption but fast leaching; low persistence in plant tissues.	Maintains nutrients active longer in plant tissues.
4	Microbial Activation	Enhances microbial equilibrium and supports symbiotic organisms.	Mild microbial activation without sustainable community growth.	Rebuilds living soil ecosystems naturally.
5	Photosynthetic Rate	Boosts photosynthesis efficiency and plant metabolism by 20–30%.	Can slightly increase photosynthesis but short-lived effect.	More durable increase in photosynthetic and metabolic rates.
6	Fruit Yield and Quality	Improves fruit development, color, firmness, and post-harvest shelf life.	Initial vigor improvement but no long-term yield impact.	Improves yield stability and fruit quality substantially.
7	Soil Regeneration	Regenerates soil organic matter and enhances carbon sequestration.	Do not rebuild soil structure or increase carbon storage.	Restores soil carbon and sustainability capacity.
8	Overall Efficiency	Ensures consistent yields and soil vitality across seasons.	Temporary response: frequent reapplication required.	Long-lasting, regenerative efficiency.

CHELATION PROPERTIES

Amino Acid Chelates

Main Ligands / Source Components		Typical Metals	Formation Mechanism	Main Agronomic Function
1	Glycine, Histidine, Glutamic Acid, Aspartic Acid, Lysine, Proline	Fe, Zn, Mn, Cu, Mg	Amino acids donate functional groups (-COOH, -NH ₂) that chelate metallic ions to form stable neutral complexes.	Improves micronutrient uptake through roots and leaves; prevents precipitation and deficiency symptoms.

Metalosates

Main Ligands / Source Components		Typical Metals	Formation Mechanism	Main Agronomic Function
2	Humic + Fulvic Acids + Amino Nitrogen Compounds	Fe, Zn, Mo, Mn, Cu, B	Humic and fulvic molecules encapsulate metals in colloidal micelles forming organic metalosates that move through soil solution.	Enhances nutrient mobility, soil regeneration, enzymatic activation, and microbial stimulation.

Carboxylates (Carbolixates)

Main Ligands / Source Components		Typical Metals	Formation Mechanism	Main Agronomic Function
3	Citric, Malic, Lactic, Acetic, Glutaric Acids	Ca, Mg, Fe, Zn, Mn	Organic acids react with metals forming weak organic salts (metal carboxylates) with high solubility and fast absorption.	Provide immediate nutrient availability, regulate pH, and improve root permeability and buffering capacity.