

# Humi[K] Gypsum: A Novel Soil Amendment and Nano-fertilizer

At Humic Growth Solutions, we perfected the art and science of functional carbons and their fusion with other vital inputs. Our patented 100 percent soluble Humi[K], fused with gypsum, creates special impact zones for soil health, fertilizer, and water use efficiencies. It is fundamental for creating stable humus, healthy soil aggregates, and high yield and quality outcomes that result in high return on investments.

## Why Gypsum for Soil Health?

- Every year, globally we lose 24,710,000 acres of crop land due to salinization and erosion. Research has shown that a combination of stable humus and gypsum can enhance soil's aggregate stabilization and salt remediation.

## Understanding the Importance of Gypsum:

In order to place the important elements of gypsum, and our product in particular, into perspective, it is vital to define their roles in soil and plant metabolisms.

### Calcium

- Plays a multitude of pronounced roles in soil and plant health, as well as nutrition.
- Root tips, shoot tips, and young leaves demonstrate distorted growth due to lack of Ca translocation and cell wall formation.
- Ca possesses different activities, coefficients, ion complexation and metabolic activities. Humic is even better at enhancing ionic strength.
- Mulder's synergism and antagonism chart attests to the importance of ample Ca.
- Fusion of humic with Ca, along with chelating and buffering capacities, enhance the synergism and create more nutrient availability.

### Sulfur

- Sulfur is a must for nitrogen fixing nodules and vital for formation of chlorophyll.
- Sulfur is a natural antifungal element, which allows the plants to resist certain diseases.
- Recent studies highlight the key importance of sulfur in microorganisms' lives, along with human and animals' overall health and well-being.



- The mixture of humic and sulfur enhances the conversion of sulfur to sulfate (from 30 to 70%) contingent upon different dynamics. This supplies consistent sulfate for plant use.
- Research has demonstrated that applying organosulfurs in high pH soils with excess salts and high Mg in fall (300 to 900 pounds per acre every 4 years) will enhance crop yield and quality.
- Humic fusion with gypsum, in conjunction with required N levels, will enhance N:S ratios in crops with high protein requirements. The review of over 30,000 soil analyses reports shows that in most cases the balances for N:S ratios are lacking.

### How does Humi[K] make Gypsum more Functional?

- Our Humi[K] is power packed with polydispersion, cationic bridging, ionic exchanges, coordinate bonding and polydynamics for metabolic activities.
- Its nanoparticles, which come in contact with gypsum and clay particles to create more surface area which in turn enhances the number of micropores, in which roots, water, oxygen, microbes and nutrients can reside.
- This helps mass flow, root interceptions, and diffusion for nutrient movement in plant roots, namely an influx of slow nitrogen release.
- Soil salinization is considered the most important abiotic limiting crop production and degrading soil properties.
- Humi[K] Gypsum will reduce salinization problems vis-à-vis different modes of action.

### The Bottom line:

- Diamond Grow® Humi[K] Gypsum serves as an innovative and dynamic soluble granular.
- It is easy to mix.
- Offers cost effective transportation and application ease for growers, commercial and urban horticulturists, along with golf courses, thus enhancing soil sustainability, crop production and return on investment.

