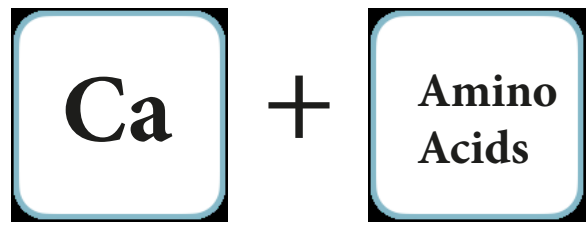


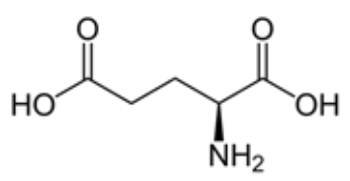
5.0 SECRET INGREDIENTS 1 - DISEASE , MOLD & PATHOGEN RESISTANCE



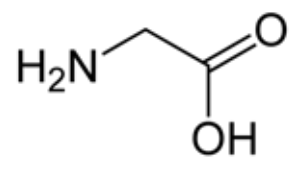
Use Amino Acid Blends

1. Amino Acids immobilise the Calcium into the plant cells to react with pectin acid and produce pectin. Mold spores are unable to assimilate and become systemic.

Natural Disease, Pathogen & Mold Resistance - Amino acids are intermediate chelators, improving the uptake of minerals. In particular, amino acids immobilise and improve the uptake of calcium by the plant. Two particular Amino Acids: *Glutamic acid and *Glycine, stimulate root cells to open up calcium ion channels, allowing calcium to be taken up 1000x faster than simple osmosis.



Glutamic Acid



Glycine

The calcium ions are taken up and react with Pectic Acid in the plant cells to make Pectin; the glue that cements the cell walls together. So now instead of water in the interstitial space (when getting more calcium uptake) we now have Pectin.

Now, when a mold spore lands on the leaf, it wants to send out a germination tube (especially powdery mildew), the water on the surface of the leaf do not allow the germination of the mold, it needs to access the internal water content in the interstitial space, then it germinates, becomes systemic and starts to spread throughout the plants. If more calcium uptake is achieved, by the time the germination tube penetrates the cells and gets to the water, the mold cell has dehydrated and died.



It doesn't kill the fungus, it is not a fungicide. It prevents the fungus from getting established, becoming systemic, spreading throughout and destroying the crop.



2. Amino Acids strengthen the stems and vascular system of the plant, allowing water and minerals to be taken up more efficiently. The more efficiently water and minerals are taken up, the higher the quality of the plant, its fruits, and flowers.

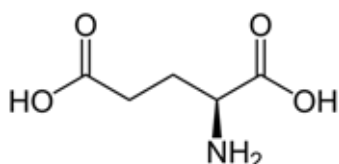
The Amino Acids we will use are created in nature's kitchen, and are called L-Amino Acids, they have a left handed orientation and are produced through Enzymatic Hydrolysis of Proteins. They are digestive enzymes that break down proteins into their building blocks - the Amino Acids. They then keep their left handed orientation which is the biologically active form of Amino Acids. Right handed Amino Acids are not biologically active

Amino acids are intermediate Chelators; Chela means; Claw. A Chelate is an organic molecule that attaches to a mineral ion like a claw, it holds it tightly enough so it doesn't get locked-up with other minerals, but loosely enough that it is available to the plant on demand. This is one of the keys to the Bio-Stimulant programme, they make the nutrient more available to the plant.

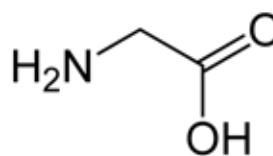
3. Amino Acids prevent Limescale

Hard water is very high in Calcium Carbonate and Magnesium Carbonate, in hydroponic systems, when using Phosphoric acid to lower PH, the Phosphoric Acid burns off the bicarbonates as carbon dioxide and water, and reacts with the calcium to create Calcium Phosphate (limescale). Literally crystals can be seen forming and falling like snowflakes to create a white blanket that will block your feeding systems and is practically impossible to even scrape off.

The 2 Aminos; Glutamic Acid and Glycine not only Chelate the calcium and keep it soluble (no more limescale) they stimulate Calcium Ion channels in the roots and allow the plant to take up the Calcium 1000x faster than simple osmosis.



Glutamic Acid



Glycine

The Amino Acids as part of this bio-stimulant became a plant protection agent. In fact the Dutch government actually approved this Bio-Stimulant product as a Plant Protection Agent.

The increase in mineral uptake, resulting in more chemical reactions in the plant (Calcium Ion uptake operation 1000x faster for example), also increases the Brix levels in the plant.

To measure Brix objectively as a buyer, it would be measured in low, medium, high brix. The higher the brix, the higher the quality.

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