Fortify Maxx™

ENGAGE
The Power of Nutrition

The Evolution Begins

A solution of Copper, Zinc and Manganese combined with natural phenophite extracts created specifically to support plants through periods of stress.

This unique blend of nutrients and extracts support the important process of synthesis of phenolic substances and phytoalexins by plants to reduce susceptibility to various crop stresses.

Mn 25 Zn 30 Cu 29

100% Organic

Classed as fully organic.

100% Residue free

Will all be used by the plant and will not create residues.

Aids crops

Will aid all crops during periods of stress and supply healthy levels of Copper Zinc and Manganese.

To discuss how Fortify Maxx can benefit your crops contact Engage:
email info@engagecropsolutions.com or 01257 226590

MADE IN

The Role of Copper, Zinc and Manganese in stress relief

It has been well documented for many years that the nutritional status of a crop plays a huge role in the overall health of plants. Essential and beneficial elements affect plant health both directly, by activating enzymes that produce metabolites (callose, glucosinolates, lignin, phenols, and phytoalexins), and indirectly, by altering root exudates, rhizosphere pH, and microbial activity. In addition, they provide support to physical development of crops which reduce stress potential. In stress three main elements are predominantly used to support crop health and to limit susceptibility to damage and these are copper, zinc and manganese.

The Role of Copper

- Copper plays a major function as a catalyst in photosynthesis and health restoration within the plant.
- It is a constituent of several enzyme systems involved in building and converting amino acids to proteins. It is important to the formation of lignin in plant cells which contributes to the structural strength of the plant cell.
- Its role in the strengthening of the cell wall can have inferences for the plant's survival when it is exposed to stress conditions.
- Copper plays an important role in reducing oxidative stress. It has the potential to act as a catalyst in the formation of free radicals but it also plays a role in reducing reactive oxygen species compounds in cells.

The Role of Zinc

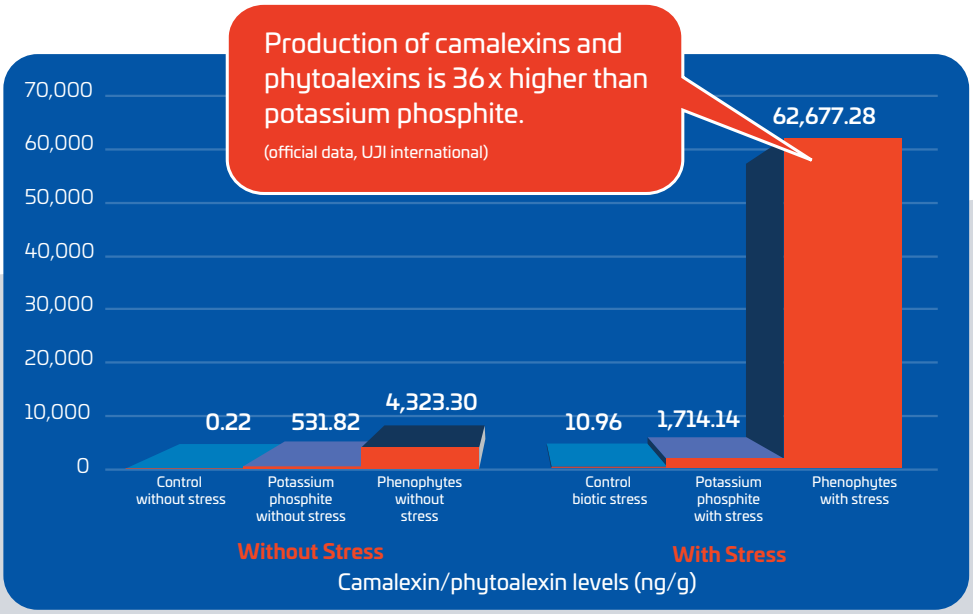
- Zinc activates enzymes in protein synthesis, plus it is involved in the regulation and consumption of sugars. It is also necessary for the formation of chlorophyll and carbohydrates which drive energy production to stress relief processes.
- Zinc is a catalytic and structural protein cofactor in hundreds of enzymes and is proven to moderate the activity of some enzymes under abiotic stress conditions such as water/drought stress.
- In many studies, zinc proteins have been proven to elevate gene expression to limit susceptibility to biotic stress factors.
- The presence of adequate amounts of zinc in its tissue enables plants to withstand lower air temperatures.

The Role of Manganese

- Manganese is essential in the formation of riboflavin (B2), ascorbic acid (antioxidant properties) and carotene which contributes to photosynthesis by transmitting the light energy that plants absorb from chlorophyll increasing energy output by the plant.
- Manganese-supported compounds are known to reduce the negative stress effect on cells caused by drought, harsh temperatures, and salinity.
- In response to stress, an adequate supply of Mn has been shown to induce the production of Mn superoxide dismutase at the gene level to quickly help break down reactive oxygen species production and stimulate manganese-dependent proteins to maintain cell integrity.

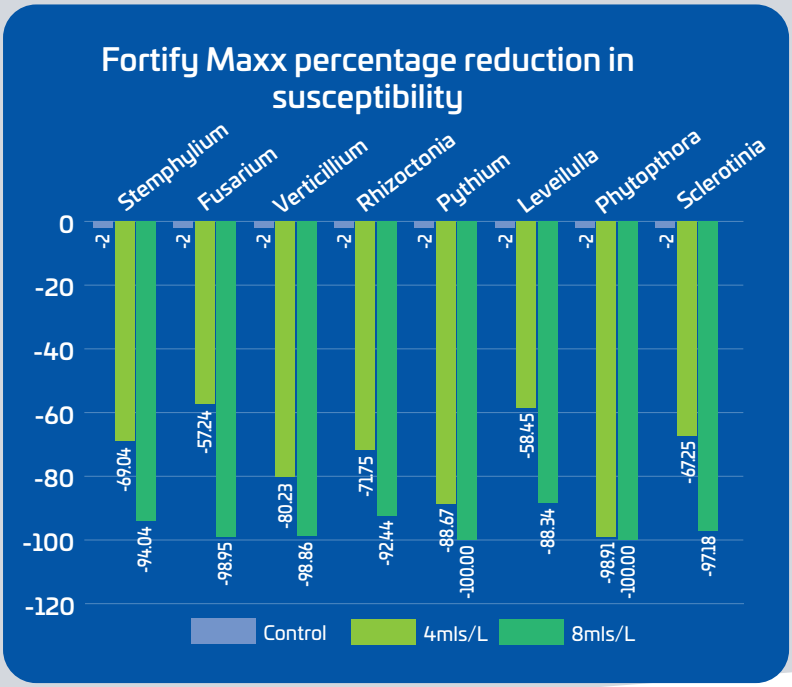
What are Phenophites and what do they do?

Phenophites is a generic term for natural plant extracts that stimulate the production of greater levels of phenolic compounds. Phenolic compounds are a group of metabolites derived from the secondary pathways of plants. They comprise flavonoids, phenolic acids, camalexins, tannins, lignans, and coumarins, compounds naturally found in fruits, vegetables, cereals, roots, and leaves among other plant products.



Research over the last 30 years has proven the stimulation of secondary plant pathways can aid plants to limit damage from oxidative stress, phosphite's being just one example from within the Fortify range. Fortify Maxx takes this research further by using natural extracts rather than inorganic substances.

New research across the world suggests that naturally elevating production of these compounds has further potential health benefits to plants, working as antioxidants against oxidative stresses such as low or high temperature, deficient or excessive water, high salinity, heavy metals, and ultraviolet radiation and pathogenic pressure. The Phenophites in Fortify Maxx work in conjunction with a nutrient package to significantly reduce the effects of these stresses on plant's growth and development.



In trials, the use of Fortify Maxx has proven that elevating the levels of Phenolic compounds in crops can have a significant impact in the production of metabolites to reduce stress.

In 2019 trials conducted by UPV, Spain, looked at the application of Fortify Maxx via fertigation to see what the effects would be in limiting susceptibility to pathogen infection. The reduction in susceptibility compared to normal feeding can be seen in the graph left. Fortify Maxx was introduced to feed at 4 and 8mls per litre of feed and compared to normal fertigation.

Fortify Maxx significantly supported overall crop health and limited susceptibility to infection from many Pathogens.

Commercial application rates

Fortify Maxx is effective at stress relief for to all crops at rates of just 1-2 litres per hectare and only needs to be applied every 14 days.

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For use on:

- Brassicas
- Leafy Salads
- Potatoes
- Carrots/Parsnips
- Legumes
- Fruiting Vegetables
- Top Fruit
- Stone Fruit
- Vines
- Citrus Fruit
- Soft Fruit
- Ornamentals

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