



## REDUCING STRESS VIA ENHANCED PLANT HEALTH

Under stressful growing conditions a plant's uptake of micro-elements is drastically reduced because of stomatal closure and limited root functionality.

Some of these micro-elements are essential for the production of enzymes that are utilised by the plant's own self defence mechanisms preventing irreversible cellular damage.

XStress is a fully optimised plant nutrient formula designed for the absorption, uptake and transport of micro-elements via the leaf and root vascular systems.

XStress is a new technology that exceeds all other products in the speed and safety of uptake, without causing any additional stress to the plant that can occur with other formulations.

XStress is based on the essential micro-elements required for enhanced plant health, including the correct proportions of iron, zinc, manganese and copper, combined with additional magnesium and glycine to enhance photosynthesis and growth.

Plant stress can be caused by poor weather conditions, lack of water, light levels, soil salinity (abiotic stress) and the negative impact of pests and diseases (biotic stress). A plant can not differentiate the source of the stress that it is under, so the plant's self defence mechanism follows the same pathways irrespective of cause avoiding undesirable effects like flower and fruit fall, etc. XStress positively impacts all types of stress whether caused by biotic or abiotic agents.

The initial effect of XStress is to enhance plant health by removing any micro-element deficiencies that occur during stressful conditions allowing the plant to grow and continue production of beneficial anti-stress enzymes and hormones.

Further regular applications of XStress allow the plant to increase (upregulate) the level of the beneficial anti-stress chemicals catalases, peroxidases, 1,3 beta glucanases, jasmonates, phytoalexins, polyamines and other proteins with antioxidant capacity that combat the key negative stress compounds - reactive oxidative substances (ROS), hydroxides and ammonia.

A further benefit of using XStress is that the amount of ethylene produced by a plant under stress decreases dramatically, leading to visibly better fruit quality, yield and shelf life.

In conclusion, a plant's natural response to the presence of stress is to produce natural defence enzymes and hormones. XStress through the action of improved plant health upregulates the ratio of positive defence chemicals versus negative destructive stress compounds and consequently has a major impact on preventing both plant damage and yield loss