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Wilson Boardman

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Combating abiotic stress through changing gene expression

Main aim: to prove the concept of alleviating heat stress in greenhouse-grown peppers by applying micronutrients/ bio stimulants. Peppers in the UK suffer from heat stress - white washes are used to cover the greenhouses. In 2015/16 there was poor summer with only low impact of heat stress (38 degrees on two occasions). The trial also engaged the UK's top commercial agronomist Derek Hargreaves. Physiological

Effects: Under normal conditions heat stress will cause the plant to cease growth and wilt Gene expression changes, some genes are suppressed, some are stimulated. Plant continues to produce growth

hormones, with some changes, wilting is gradual and at higher temperatures, flowering continues, fruit set continues, new growth does not stop.

Conclusions and future work: D1 treatment shows highest yield, fruit number and sugar content; D2 treatment shows the highest average weight per fruit; D1: higher Se, S, K in D1, D2: higher Cu, Mn, Zn, Mg, Fe and P; Roots: D1 has higher dry weight; D2 roots are longer; D1 and D2 have significant high resistance to fruit rotting (heat stress). D1 and D2 show significant differences in expression of "heat" genes.

Biography

Wilson Boardman in his early career was working in the pesticide industry in both technical and commercial roles for multi-national manufacturers. Micromix was acquired by the OLMIX group in June 2018 and Wilson is now the Global Ambassador for Plant Care Products for the French owned group. Micromix recently was awarded a research grant by the UK government of a little over \$1m to develop its technology facilitating crop development under reduced irrigation or drought conditions. His research interests are; plant nutrition, crop protection, plant pathology and agriculture.

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