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ACCEPTED ABSTRACTS

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## Soil or hydroponic: A comparison of soil rockwool and deep water culture for assessing quality in the tomato production

Salvatore Gaetano Verdoliva  
Aberystwyth University Institute  
of Biological, UK

The world is facing many challenges in adapting to climate change and increasing population in combination with a potential slowdown in improvements in yield per unit area for several crops and large-scale degradation of land used for food production. There are many different possible solutions and one recently championed is the

implementation of controlled environment agriculture. Hydroponic systems can match the needs of this new kind of agriculture, especially because is substantially possible to reduce the pollution of water resources while contributing to a reduction in water and fertilizer consumption. Hydroponic can also produce better yields per unit area but the quality of its product had been debated. When Hydroponic started to be used widely, public opinion considered hydroponic fruits and vegetables worse than the ones grown in soil and consumers seemed to consider them “artificial”. Many studies tried to understand if the quality of hydroponic products is better or worse compared

to other growing methods but contradictory results caused persistent uncertainty. Quality includes many different parameters and they can be impacted significantly by nutrients absorbed by plants. In this study was investigated how the quality of tomatoes is affected by different growing systems (Soil, Rockwool and Deep Water Culture) with the same nutrients availability. Morphological parameters and nutrients absorption rates were measured to understand if the different systems can affect the overall growth. Also, Total Soluble Solids, Total Antioxidant Activity, and Lycopene levels were analyzed in order to assess quality.

*sgv@aber.ac.uk*