Title:
3056- Machine learning tools to identify key minerals of Hoagland solution for healthy kiwiberry micropropagated plant hardening

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Abstract body text:
The Hoagland solution is widely used for growing plants in hydroponic systems. The objective of this work was to understand in depth the effect of mineral elements in Hoagland’s solution on various growth and quality morphophysiological responses of micropropagated kiwiberry seedlings during their acclimatization stage. For this purpose, a five-dimensional experimental design based on 19 model-points using optimal response was designed, which included the combination of 7 mineral elements (N, P, Ca, K, S, Mg and Cu) at three levels. Subsequently, the results obtained were modeled using a machine learning tool, called neurofuzzy logic, which made it possible to understand the role of each mineral element and determine how the mineral components of the tested solution affected the measured physiological responses. The results indicated that the combination of both computer tools were able to predict and unmask the hidden interactions among the minerals and demonstrated that it is essential to halve the nitrate content of full strength Hoagland solution to improve kiwiberry micropropagated plants hardening.