Title Predicting rose vase life in a supply chain

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Abstract

With increasing market globalization quality management of cut flowers is a necessity. An important attribute of quality of cut flowers is their vase life at the final consumer. However, techniques to measure the potential vase life at points of sale in the chain are not available at this moment. Vase life is largely affected by the conditions (temperature, duration and handling) in the supply chain. Therefore, simulation models that can predict vase life based on temperature and time, as measured by data loggers, could be very valuable. Moreover, such simulation models could be used for scenario studies to investigate quality critical control points. A previously published simulation model, based on scarce data from literature, was validated for cut rose flowers using data of a vase life experiment with flowers stored at 1, 5, 8 and 12 °C for periods varying between 2 and 39 days. The experimental setup was designed to exclude the occurrence of *Botrytis* and water uptake problems due to bacteria as much as possible. The experimentally obtained vase life data confirmed that the relationship between temperature and loss of vase life during storage is not linear, but could well be described by a sigmoidal curve. The predicted vase life applying the simulation model correlated very well to the measured vase life. However, the vase life after long storage was underestimated; this could be improved by adapting the maximum rate of vase life-loss for the specific cultivar using the vase life of fresh cut flowers without storage.