Abstract

The objective of the present paper was to examine the hypothesis that the time–temperature sum built up during storage and transport at constant as well as stepwise changing temperatures is a good predictor of the remaining vase life of cut roses. Theoretical calculations and graphing of functions showed that the time–temperature sum closely approximated the more common approach to quality loss, involving first order reaction kinetics with an Arrhenius temperature dependency. The time–temperature sum approximation failed at temperatures below 2 °C, especially in the case of long storage times. The time–temperature sum approximation succeeded in the range 2–6 °C. For temperatures above 6 °C, the degree-days model will underestimate the remaining vase life, depending on the storage time. The current experiment confirms these expectations from theory about the performance of the time–temperature sum. In the experiment not only constant storage temperatures but also stepwise changing storage temperatures were applied. Because of its simple principle, the time–temperature sum has practical value, but we are now aware of its limitations.