

Storage temperature and duration affect cut rosa 'Freedom', 'Charlotte' and 'Classy' vase life

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Abstract

Flowers are commonly shipped great distances to reach their market, often at variable temperatures. When *Rosa* L. 'Freedom' stems were stored at 1, 10, 20, or 30°C for 12, 24, 36, or 48 h, the longest vase life, 11.7 d, was obtained for stems stored for 12 h at 1°C. Vase life decreased linearly with both time and temperature to 6.4 d at 30°C for 36 h. 'Charlotte' stems also had the longest vase life, 8.6 d, at 1°C for 12 h, and shortest of 2.9 d at 30°C for 36 h. 'Classy' stems had the longest vase life, 9.3 d, at 1°C for 24 h, and shortest, 5.8 d, when held at 30°C for 48 h. Water uptake and petal bluing were positively correlated with vase life. Flower opening for 'Charlotte' stems was unaffected by time and temperature, while 'Classy' and 'Freedom' flowers opened less as temperature increased. In a second study, the longest vase life, 15.3 d, was obtained when 'Freedom' stems remained at 1°C for 48 h, while the shortest vase life, 11.5 d, occurred when stems remained at 20°C for 48 h. Interrupting cold storage (44 h, 1°C) with a 4-h period of 20°C temperature reduced vase life compared to constant 1°C storage for 48 h, but the timing of the warm temperature period had no effect. Water uptake and flower openness were positively correlated with vase life. In a third study on *Rosa* 'Freedom' interrupting cold storage (134 h, 1°C) with a 6-h period of 20°C temperature had no effect on vase life compared to constant 1°C storage for 140 h, regardless of when the warm period occurred. The longest vase life, 11.7 d, occurred when stems were not stored (20±2°C). The shortest vase life, 1.9 d, occurred when stems remained in 20°C for the duration of the storage time.