

Title Effect of air humidity variation on powdery mildew and keeping quality of cut roses
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Abstract

Vase life, flower opening and development of mildew were studied in six cut rose cultivars grown at daily periods of 0, 6, 12, 18 and 24 h at 90% and 75% relative air humidity (RH) was determined. Air humidities corresponded to vapour pressure deficits (vpd) of 220 and 550 Pa, respectively. Treatment with drought stress was included at the constant high RH treatment. On increasing RH from constant 75% to constant 90%, vase life decreased by between 15% and 70% in the different cultivars. High RH for up to 18 h generally had only a minor effect on vase life, but there was a significant deterioration between 18 and 24 h (continuous). On increasing the daily period of 90% RH from 0 to 12 h, the percentage of flowers opening during vase life in one of the cultivars decreased; a further increase to 18 and 24 h significantly reduced flower opening in five of the six cultivars. As a mean of all cultivars, 71% and 27% of the flowers opened when grown at 75% and 90% RH, respectively. The development of mildew was much greater at 12 h 90% RH combined with 12 h 75% RH compared with all other treatments. Constant 90% RH eliminated all mildew development, while at constant 75% RH, only minor infections were observed. Drought stress at constant 90% RH increased the vase life of five cultivars and stimulated the flowers to open in three; no mildew development was observed in any of the cultivars.