

## **Abstract**

The New Zealand cut flower industry is increasingly looking at larger off shore markets for growth. However, stems need to be stored for significant periods of time during transport which can significantly impact on the quality and consumer satisfaction. The storage potential of two cut rose cultivars was investigated; 'Trix' (long vase life) and 'Passion' (short vase life). Harvested, stems were acclimated in water for 24 h at 5°C before placing into boxes containing polyliners. Boxes were then held in a cool store at 0.5°C or 5°C for up to 21 days. At the end of each strain period, stems were evaluated for vase life and water uptake, photosynthetic efficiency of leaves (using chlorophyll fluorescence), and heat shock (HSP 70) and dehydrin protein expression in both leaf and petal tissue. It was possible to dry store 'Trix' for 21 days and still have an acceptable vase life (> 11 days) as long as stems were stored at 0.5°C. 'Passion' was more sensitive to storage and vase life decreased to an unacceptable level (< 6 days) if stems were stored for 10 days or more. Storage temperature of 5°C was unsuitable for Jet storage durations of either cultivar, as buds were too open during storage resulting in an unacceptable level of petal damage. Changes in photosynthetic efficiency and protein expression observed during and after storage indicated that the stems were progressively more stressed as storage duration increased which was also reflected by the general decrease in the vase life.