

## Abstract

Field stress during growth was hypothesized to negatively influence the photosynthetic apparatus and storage quality of iceberg lettuce (*Lactuca sativa* L.). The objectives of this study were to assess the sampling variation associated with chlorophyll fluorescence (CF) measurements of iceberg lettuce and to investigate their use as at-harvest indicators of the storage potential of 'Ithaca 989' and 'Salinas 88 Supreme' cultivars of iceberg lettuce. CF varied among heads, leaves, and locations within a single leaf. However, when measured at the same location on several heads, CF measurements had the same level of variability as other parameters used to evaluate quality. Several at-harvest CF measurements (particularly  $F_v/F_m$ ) correlated strongly ( $r \approx 0.8$ ) with ratings describing the overall visual quality and decay of 'Ithaca 989' lettuce after 7, 14, and 21 days storage. These ratings had a narrower range of observations for the cultivar 'Salinas 88 Supreme' and were consequently poorly correlated with CF. However, both cultivars had excellent correlations between rib discoloration and day 0 or day 1  $t_{1/2}$  measurements. This supports the hypothesis that the at-harvest CF of a subset of individuals, randomly sampled from within a group, can be correlated with postharvest quality of the entire group.