

Abstract:

Greenhouse lettuce is perishable after harvest. Recommendations are to store at 0 °C for a potential shelf life of 21-28 days. However, shelf life is much reduced in commercial practice. Two trials examined the effects of growing conditions and post-harvest procedures on lettuce shelf life. In four pre-harvest experiments in the first trial, supplementary lighting with high-pressure sodium (HPS) lamps accelerated shelf life decline from 0.86 days per °C of constant temperature in control to 1.34 days under HPS lighting. Fertilizer and use of a fan had weaker effects, and cultivars had no effect on shelf life evaluated under constant temperatures of 1, 5, 10 and 20 °C. Four experiments in the second trial examined the effect of post-harvest procedures. Both living lettuce (with roots) and lettuce with roots removed were obtained from local commercial greenhouses. The samples were obtained at various points of post-harvest procedure: in the greenhouse, in the shipping area of a packing house, and at a retailer warehouse. Samples were immediately stored at 1 °C for shelf life evaluation. Living lettuce had longer shelf life than butterhead lettuce. Those that received vacuum cooling immediately after harvest had longer shelf life than those that were room-cooled. Living lettuce sampled in the shipping area of a packing house had longer shelf life than sampled at the retailer warehouse. It is apparent that both pre- and post-harvest factors significantly affect the self life of greenhouse lettuce.