

### Abstract:

Intact, bruised, and bruised + inoculated (*Botrytis cinerea*) strawberries (cv. Sweet Charlie) were stored under two temperature regimes (semi-constant and fluctuating) simulating conditions previously measured by us and typically encountered during ground and in-flight perishable handling operations. The objective of this work was: 1) to study the effects of commercial temperature regimes on the quality of strawberries throughout the handling chain; 2) to determine which of the handling procedures was primarily responsible for quality losses; and 3) to determine which quality parameter(s) limits the salability of strawberries. Weight loss, appearance, and chemical composition were evaluated for every step of handling simulation. Uniformly bruised and bruised + inoculated fruit were evaluated for decay incidence. Strawberries stored in semi-constant temperature lost less weight, had better visual ratings for color, firmness, and shriveling, had less incidence of bruising, and had higher pH and ascorbic acid content, lower acidity and anthocyanin content, and equivalent soluble solids content compared with those stored in fluctuating temperatures. Bruised and bruised + inoculated strawberries stored in semi-constant temperature had less decay at the retail display level than those stored in fluctuating temperatures. Poor color (darkening), softening, shriveling, and bruising were the main factors that limited the salability of the strawberries. Greater losses in quality occurred during simulation of the airport handling operations, in-flight and retail display than during warehouse storage at the grower, truck transportation to or from the airport, or during backroom storage at the supermarket. Strawberries from the fluctuating temperature regime were considered unmarketable before exposure to retail conditions, while those from the semi-constant temperature treatment were still acceptable after 24h in the retail display. The results indicate that fluctuating and/or high temperatures that are often encountered during handling operations, even if the duration is very short, may result in rejection of a whole load of strawberry.