

Abstract

Greenhouse production of fresh vegetables can be characterized by high capital investment for structure and equipment, and by high cost of production. A reasonable market price from these commodities is needed to justify the viability of such an industry. High standards of quality and long shelf life, therefore, are necessary for adequate market income. The maintenance of a set of quality attributes dictates the length of time such a product is suitable for purchase and consumption. In the industry, such duration for marketing is called shelf life. In this review, four crops will be discussed - tomato, cucumber, pepper and lettuce. Tomatoes are harvested at Turning stage (USDA stage 3), and their shelf life is relatively short. The taste (sweetness) of tomato can be improved by the increased strength of nutrient solution during its production. On the other hand, tomato flavor (volatiles) depends on ripening and storage temperatures, but cannot be improved by high nutrient concentrations. Cucumbers are susceptible to yellowing, which limits the shelf life. Long shelf life of cucumbers is associated with intensity of green at harvest, and such greenness is related to intensity of canopy light. Variability of yellowing in a population of harvested cucumbers is often observed, although rarely reported. Sweet peppers are harvested at full color, and they can be stored at low temperatures (7 to 10°C) for two to three weeks. Red colored peppers seem to be stored more readily than yellow cultivars. Greenhouse-grown butter lettuce is tenderer than field-grown lettuce, although the handling processes are very similar. Butter lettuce suffers from postharvest handling, likely due to mechanical damage and temperature fluctuations. The demand for nutritional quality has evolved in recent decades, and food having health-related characteristics seems to have gained in popularity.